AN HBJ PUBLICATION

July 1983/$2.00

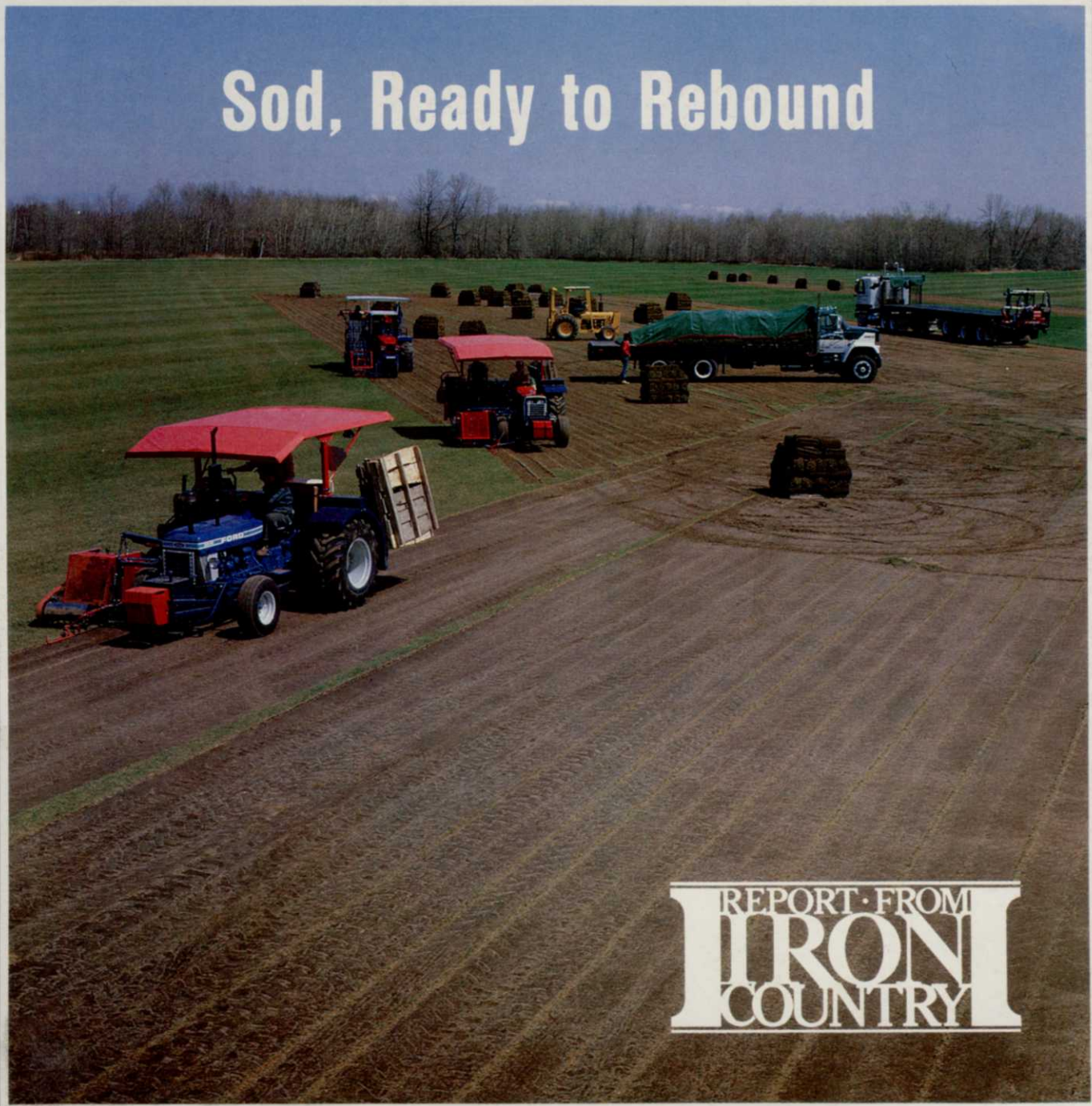
WEEDS TREES & TURF

The Magazine of Landscape and Golf Course Design, Construction and Care Since 1962

The State of the Golf and Landscape Industries

Report From Iron Country: Record Year for New Models

McLoughlin Resigns at GCSAA



Brouwer Turf Farms, Keswick, Ontario, Canada

GNC 750

About the only bug you have to worry about with Dursban.

If you've been having trouble controlling a certain squatty German bug with rubber legs, don't call us.

But, for just about any other bug problem, DURSBAN* insecticide is the answer.

It's labeled for all the major insects you'll be battling this year: chinch bugs, cutworms, armyworms, grubs, sod webworms, chiggers, clover mites, turfgrass weevil, earwigs and more.

No other insecticide fights them longer, either. While other brands quit after four or six weeks, DURSBAN keeps going strong for eight weeks. And that could mean up to six fewer applications per year on year-'round courses.

But, even though it lasts longer, DURSBAN insecticide costs less than most other brands. In fact, you can do a 1000 sq. ft. area for as little as 35¢. Which is probably why many courses are using DURSBAN on tees and around the clubhouse as well as on their greens.

DURSBAN is also gentle on desirable grasses, ornamentals and the environment.

Choose DURSBAN insecticide in regular 2E and double-strength 4E liquid formulations. Plus, new 50W wettable powder.

DURSBAN. There's hardly a bug it won't get.

Available from your Dow distributor. Be sure to read and follow all label directions and precautions. Agricultural Products Department, Midland, Michigan 48640.

DURSBAN

For whatever's bugging you.

DOW*

Dow Chemical U.S.A.

*Trademark of The Dow Chemical Company.

Circle No. 110 on Reader Inquiry Card

3917

WT&T

Cover: Brouwer Turf Farms, Keswick, Ontario, Canada. Gerry Brouwer's company has grown from a sod farm into an international supplier of sod, mowing and forklift equipment.

JULY 1983/VOL. 22, NO. 7

Cushman's Grass Caddy is a sign of demand for commercial grass collection systems. See Iron Country, page 24.

24
Report From Iron Country

Golf and landscape equipment manufacturers predict a shake-out in the number of equipment companies as new ones enter the market. Manufacturers reveal plans and problems. 1983 may set records for the number of new models.

32
Sleek and Wiser, State of the Industry

As construction returns, gains in productivity and cost control are still needed. Will parks be able to meet the increasing demand for athletic fields, and will they be managed properly? A look at all segments of the Green Industry.

36
The Sod Market, Ready to Rebound

The latest *Weeds Trees & Turf* survey shows a fall in staff and purchases in the last three years. But, new technology enables sod producers to bounce back quickly with new construction.

38
New Breed in Oregon Accepts Renovation

Oregon Turf Farm manager Will Lighty bases the future of sod on a new breed of customer with new attitudes about lawn renovation. The advantages of sod for instant, quality turf cover can overcome reluctance of price compared to lawn seeding.

40
Efficiency is Key to Long Island Sod Farm

Dick McGovern considers efficiency the key to success in sod today. Equipment and using the land like a commodity keep McGovern Sod Farms a major factor in the New York metropolitan area.

Oregon Turf Farm's new breed, page 38

45
Workmen's Compensation, No-Fault Protection

Labor lawyer Richard Lehr tells the reasoning behind workmen's compensation and how to avoid disputes with employees. Check state laws to see if your company is required to participate in workmen's compensation programs.

DEPARTMENTS

Outlook 6
Green Industry News 8
Golf Update 10
Landscape Update 14
Government Update 16
Landscape Log 22
Letters 52
Events 55
Problem Solver 56
Products 58
Classifieds 62
Advertiser Information 64

Robert L. Edgell, Chairman; Richard Moeller, President; Lars Fladmark, Executive Vice President; Arland Hirman, Treasurer; Thomas Greney, Senior Vice President; Ezra Pincus, Senior Vice President; Pat O'Rourke, Group Vice President; Joe Bilderbach, Vice President; James Gherna, Vice President; George Glenn, Vice President; Harry Ramaley, Vice President.

WEEDS TREES & TURF (ISSN 0043-1753) is published monthly by Harcourt Brace Jovanovich Publications. Corporate and Editorial offices: 7500 Old Oak Boulevard, Cleveland, Ohio 44130. Advertising Offices: 757 Third Avenue, New York, New York 10017, 111 East Wacker Drive, Chicago, Illinois 60601 and 3091 Maple Drive, Atlanta, Georgia 30305. Accounting, Advertising Production and Circulation offices: 1 East First Street, Duluth, Minnesota 55802. Subscription rates: $16 per year in the United States; $20 per year in Canada. All other countries: $45 per year. Single copies (pre-paid only): $2 in the U.S.; elsewhere $4.50; add $3.00 for shipping and handling per order. Second class postage paid at Duluth, Minnesota 55806 and additional mailing offices. Copyright © 1983 by Harcourt Brace Jovanovich, Inc. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical including photocopy, recording, or any information storage and retrieval system, without permission in writing from the publisher. Microfilm copies of articles are available through University Microfilm, International, 300 N. Zeeb Road, Ann Arbor, Michigan 48106.

POSTMASTER: Send address changes to WEEDS TREES & TURF, P.O. Box 6198, Duluth, Minnesota 55806-9898. HBJ A HARCOURT BRACE JOVANOVICH PUBLICATION

STOCKY NEW FORDS. NEW UNDER 30 HP DIESELS!

Tough new 1000 Series Tractors do it all!

Stocky new 1000 Series Ford diesels have the compact size and muscle needed for tough grounds maintenance work.

They offer you a combination of features you can't get anywhere else... including live hydraulics, 540 rpm PTO, diff-lock, and the widest choice of under-30 horsepower models in the industry.

New 3-cylinder diesels power five of the six new models. Your choice of 11.5, 13.5, 16.5, 19.5, 23.5 or 28.5 PTO horsepower.*

Exclusive Synchronized Manual Shuttle transmission lets you shift up, down and forward-to-reverse without stopping. It's optional on larger models only. There's an optional hydrostatic transmission for smaller tractors.

Four-wheel traction. Tight-turning front-wheel drive option can cut wheel slip, and can save time and fuel.

Excellent parts and service backup. Your Ford Tractor dealer has the parts, facilities and know-how to service your tractor quickly and correctly.

These tractors can be fitted with more than 50 implements and attachments to handle a wide range of grounds maintenance jobs. See the stocky new Fords at your Ford Tractor dealer.

**Manufacturer's estimate. Model 1910, 28.5 hp, not available until Fall, 1983.*

FORD TRACTORS

Circle No. 112 on Reader Inquiry Card

This slope was cleared with Roundup–then planted with a ground cover.

ALWAYS READ AND FOLLOW LABEL DIRECTIONS FOR ROUNDUP.
Roundup® is a registered trademark of Monsanto Company. © Monsanto Company 1983. RUP-SP3-103

"ROUNDUP® SAVED ME ABOUT 6 DAYS ON THIS RENOVATION."

"WITH ROUNDUP, I NOT ONLY SAVE TIME, I CAN ALSO DO A BETTER JOB. BIG JOBS OR SMALL ONES. EXTENSIVE RENOVATIONS—OR JUST AN AREA UPGRADE. THE FACT OF THE MATTER IS, I COULDN'T BE AS COMPETITIVE WITHOUT ROUNDUP."

CARL SCHIEFER
OF CARL'S LANDSCAPING, INC., LAGUNA HILLS, CALIFORNIA.

Carl Schiefer runs an award-winning landscaping business in Orange county, California. In that part of the country bermudagrass is an extremely tough perennial weed problem in lawn and shrub areas. Carl solves that problem with Roundup® herbicide.

"We spray Roundup, and 7 days later we can plant. That's because Roundup has no residual soil activity. With conventional methods, we'd have to spend days digging up the rhizomes. In some areas, that means going down at least 12 inches if you're going to do an honest job. With Roundup, we can destroy the weeds, roots and all. On this particular site, I figure I saved about 6 days with Roundup."

When you renovate a lawn or slope with Roundup you won't have to dig, disc or use a sod cutter. Just apply Roundup when the old lawn is actively growing and at the proper stage of growth. Then come back 7 or more days later to power rake, till or slice—then plant. Your customers will like Roundup too, because the work site can hold up to light foot traffic during renovation.

Roundup can help make your workforce more efficient and your bidding more competitive. When you add it all up, that's the kind of edge you need to be successful today. Just ask Carl.

FOR MORE INFORMATION ABOUT MAKING LAWN RENOVATION MORE PROFITABLE WITH ROUNDUP, CALL 1-800-621-5800 TOLL FREE. IN ILLINOIS, CALL 1-800-972-5858.

Round up was also used for trimming and edging around new plantings, as well as follow-up maintenance.

Monsanto

Circle No. 127 on Reader Inquiry Card

OUTLOOK

By Bruce F. Shank, Executive Editor

Superintendents Aren't Pushovers: Concerned Members Have Power

The news from the Golf Course Superintendents Association of America (GCSAA) about Executive Director Jim McLoughlin's resignation was not unexpected. It was the result of membership speaking up for a cause they believed in strongly.

After ten years covering industry associations and one year as president of one, The American Society of Business Press Editors, I am extremely impressed with the way GCSAA and its membership handled a sticky situation.

Before the conference in February in Atlanta, a Coalition of Concerned Members was formed to independently study both sides of the relocation issue. The group hired a public accounting firm to pinpoint the real benefits and costs of moving the headquarters to Orlando, Florida. Their findings were published and distributed prior to the conference, at the coalition's expense.

We planned to make the issue a major part of our Show Dailies, but held off when members of the Coalition said they preferred to handle the issue within the association first.

Working from within, the Coalition was able to delay any relocation plans. They made it clear to the association directors and staff that the reasoning for the move was not strong enough to risk the expense and possible harm to other ongoing programs. The membership was not satisfied with the explanation given to them by McLoughlin.

Association direction and management is extremely complicated. Basically, a staff is paid to do what volunteers can't. They try to work from guidelines set by boards or volunteers who have their own responsibilities and worries. The board members often hear better prepared arguments from staff than they do members.

Association managers tend to be very good salesmen. Many times they carry an association through times when direction is lacking. When impatient, they can push an association beyond its means before the membership knows what happened.

The members of GCSAA reacted quickly, spoke up, and therefore retained control. Furthermore, the board members acted to represent the membership. The Coalition built such an impressive case the Board had to listen. Few associations operate so well.

It may seem like GCSAA should be embarrassed. On the contrary, GCSAA is an example for other associations to follow.

Future executive directors of GCSAA will know its members speak up when new programs are not clearly justified. Superintendents are no pushovers. **WTT**

WT&T Editorial Board

Euel Coats
Associate Professor
Weed Science
Mississippi State University

Douglas Chapman
Horticulturist
Dow Gardens
Midland, Michigan

Kent Kurtz
Professor
Horticulture
Cal Poly - Pomona

Harry Niemczyk
Professor,
Turfgrass Entomology
Ohio State University
Wooster, Ohio

Roger Funk
Vice President
Davey Tree Export Co.
Kent, Ohio

WT&T

Executive Editor
Bruce F. Shank, Cleveland

Associate Editor
Maureen Hrehocik, Cleveland

Publisher
Dick Gore, Atlanta

Senior Vice President
Tom Greney, Chicago

Group Publisher
Robert Earley, Cleveland

Production Manager
Kathy Judd, Duluth

Production Supervisor
Marilyn MacDonald, Duluth

Graphic Design
Mary Hessing, Duluth

Circulation Manager
Kristine Bussell, Duluth

Directory Coordinator
Sheryl Albertson, Duluth

Reader Service Manager
Gail Kessler, Duluth

Promotion Manager
Linda Winick, Cleveland

OFFICES

ATLANTA
3091 Maple Drive
Maple Center One Building
Atlanta, GA 30305
(404) 233-1817

CLEVELAND
7500 Old Oak Boulevard
Cleveland, OH 44130
Editorial: (216) 243-8100

CHICAGO
111 East Wacker Drive
Chicago, IL 60601
(312) 938-2344

SEATTLE
1333 N.W. Norcross
Seattle, WA 98177
(206) 363-2864

DULUTH
120 West Second Street
Duluth, MN 55802
(218) 727-8511

MARKETING REPRESENTATIVES

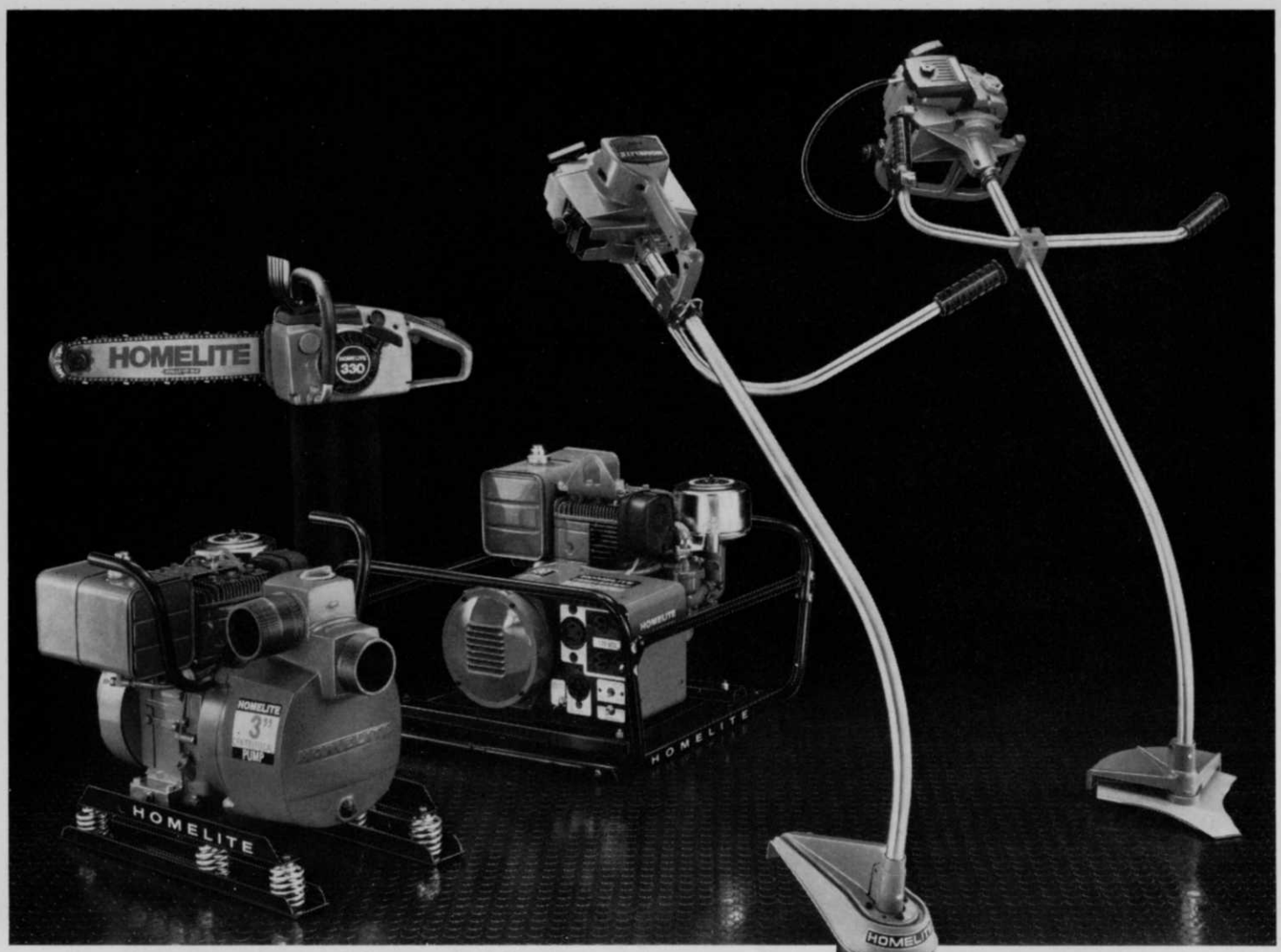
Dick Gore
Atlanta (404) 233-1817

Ron Kempner
Atlanta (404) 233-1817

Joe Kosempa
Cleveland (216) 243-8100

Robert Mierow
Seattle: (206) 363-2864

Member; American Business Press, Business Publications Audit, National Golf Foundation, America Sod Producers Association, Associated Landscape Contractors of America, National Landscape Association, Horticultural Research Institute.



TIME MACHINES.

WHEN TIME IS MONEY, HOMELITE® SAVES YOU TIME.

Whenever a piece of your grounds maintenance equipment is down for repairs, your productivity is down, too. And your costs are up.

Let's face it, time is money.

That's why Homelite makes a full line of portable power equipment that is engineered for long service life and less downtime. From pumps and generators to chain saws, string trimmers and brushcutters, you can count on Homelite's advanced technology to keep them on the job. And out of the shop.

But that's not the only way we save you time.

You don't have to go any farther than your nearest Homelite dealer to find grounds maintenance equipment with a full range of accessories to meet every need.

And whenever you require parts or service, we'll save you time there, too. Your Homelite dealer is part of a nationwide network of distribution and service centers that can get you anything you need—fast.

Talk to your dealer about everything Homelite has to offer. Because any way you look at it, Homelite saves you time.

For more information, contact Bill Grant, Executive Director of Sales, Homelite Division of Textron, P.O. Box 7047, Charlotte, N.C. 28217.

HOMELITE

HOMELITE TEXTRON

Homelite Division of Textron Inc

Circle No. 117 on Reader Inquiry Card

GCSAA

McLoughlin resigns, move in doubt

The controversial executive directorship of James E. McLoughlin for the Golf Course Superintendents Association of America will come to an end September 1, 1983. McLoughlin tendered his resignation the end of May.

According to John Schilling, associate executive director, "An association can't be based on one man's dreams. McLoughlin's dreams, including relocation of the headquarters to Florida, did not always agree with those of the membership and the executive committee. The members want educational programs, a good conference, and all the benefits a well-run association should provide," said Schilling.

The official announcement of McLoughlin's resignation states his reasons for leaving as the one to two-year delay in relocation of the headquarters and the need to be closer to his family in New York.

"It is doubtful whether the Relocation Committee will have a proposal for the membership by the Las Vegas conference in January," Schilling said. "Many of the benefits originally expected from Orlando, Florida, either didn't materialize or can be met by Kansas University and the city of Lawrence. The opinions of our members have to be given top consideration, as were the opinions of a coalition against the move formed before the last conference in Atlanta."

Between now and September 1, the Executive Committee will be reviewing the goals of the association in regard to the type of executive director needed.

The press for relocation, the financial condition of the association, and an investigation of the GCSAA headquarters by law enforcement officers this spring for alleged gambling violations were all factors on the minds of the Executive Committee in accepting McLoughlin's resignation.

"The dues increase passed by the membership at the Atlanta conference was for educational programs," Schilling said. "Certainly, Educational Director Jim Prusa will play more of a management role in the future. We need to concentrate on good association management based upon the direction of the membership."

Schilling has been in charge of marketing for the conference and *Golf Course Management* magazine. He received the associate executive director title upon McLoughlin's announcement.

Total of 5,892 showgoers *visited the 261 exhibit booths at the 1983 National Landscape Industry Show. The exhibitors saw an enthusiastic crowd during the two-day show held recently in Anaheim.*

SEED

Ryegrass fights back against turf insects

Recent discoveries linking the presence of fungi in perennial ryegrass to insect resistance may be a major step forward for turf and producers. A research paper on the discoveries was presented by Rutgers turf breeder Dr. C. Reed Funk and Lofts Seed Co. Vice President Richard Hurley to a symposium on insect resistance in Oregon in May.

Endophytic fungi was present in perennial ryegrass in turf areas relatively undamaged by sod webworms. The endophytes can be transmitted to descendants of resistant perennial ryegrass parents. Funk has also shown resistance to the bluegrass billbug.

Seed producers could add the insect resistance benefit to their perennial ryegrass seed. The endophyte has also been found in tall fescues.

INDUSTRY

Champion appoints national sales manager

Frank M. Frederick has been appointed national sales manager of Champion Brass Mfg. Co. of Los Angeles. Champion produces sprinklers and accessories.

Frederick comes to Champion from Royal Tool in New York and has more than 20 years experience in sales and management.

Does anyone rely as much on the weather as a turf manager does?

Maybe.

Pennfine Perennial Ryegrass covers more ground than any other turfgrass variety in the world. This message recognizes the people who made it happen.

For your free full-size (22" x 28") poster of this ad, send your name and address to:
Pennfine Poster #6, P.O. Box 923, Minneapolis, MN 55440. (Watch for the other five ads in this series.)

Circle No. 130 on Reader Inquiry Card

GOLF UPDATE

NGF backs management school

The National Golf Foundation has established a new, two-year Golf Management School at Oglebay, a resort and municipal park operated by the Wheeling, West Virginia, Park Commission.

The Foundation will participate in an advisory capacity, according to NGF President Frank Smith, appointing three of the seven members of the Board of Regents, helping establish curricula and providing educational materials.

The school hopes to provide an improvement of the operational skills for managers of public golf facilities.

"We believe there is a need for such a school," said Smith, "and know the combined expertise of Oglebay and the Foundation will make the venture successful."

Ralph Cryder, director of the Los Angeles County Park System, will chair the Board of Regents. Field Services Director Joe Much will coordinate the Foundation involvement.

The first five-day session is scheduled for Jan. 8-12, 1984. A $200 fee will cover tuition, books and supplies. Registrants are expected to participate in both the 1984 and '85 sessions.

More information is available from Randy Worls, Oglebay, Wheeling, WV, 26003, (304) 242-3000.

Robinson elected president of ASGCA

Ted Robinson of Laguna Niguel, CA, is the new president of the American Society of Golf Course Architects.

Robinson, a graduate of the University of California, received his Master's degree in urban planning and landscape architecture from the University of Southern California. In 1954, he established his own practice and was involved in land planning, subdivisions, park design and golf course architecture. In the late 1970s, Robinson began concentrating his efforts on golf course architecture.

Other officers elected at the annual meeting in Dallas recently were Dr. Michael Hurdzan, Columbus, OH, vice president; John Watson, Lachute, Quebec, Canada, secretary; and Ken Killian, Palatine, IL, treasurer.

The society, headquartered in Chicago, is comprised of leading golf course architects in Canada, Mexico and the U.S.

Nugent forms own design company

Golf course architect Dick Nugent has formed a new golf course design firm, Dick Nugent Associates of Palatine, IL.

Formerly a partner in Killian and Nugent, Inc., Nugent has been instrumental in the design of dozens of the nation's top courses including Kemper Lakes golf course, home of the Illinois PGA; Tuckaway Country Club, site of the Milwaukee Open; and Sand Creek golf course, Bethlehem Steel's new course near Burns Harbor, IN. He has also been involved in the remodeling of many established clubs such as Medinah, renovated for the 1975 U.S. Open.

NEWS *from page 8*

IRRIGATION

Royal Coach/Buckner buys Valtronix assets

Royal Coach/Buckner, a Fresno, CA irrigation equipment manufacturer, has purchased the assets of Valtronix Manufacturing Co. of South El Monte, CA.

Mel Canterbury, vice president of Royal Coach/Buckner said, "This acquisition will provide us with a full line of industrial grade plastic valves for turf and irrigation applications in 1 inch through 3 inch sizes with a standard angle/globe configuration complete with plug. These complement our brass valve lines."

"The pressure regulator series features a moisture-proof, adjustable pressure regulator with a locking device to maintain steady outlet pressure settings regardless of changing inlet flow. The contamination-resistant series handles dirty water and effluent systems and has a 3-way solenoid, normally closed. In addition, the line includes electric 2-way solenoid and hydr aulically normally open series diaphragm valves."

The valve bodies are molded of 30 percent glass-filled nylon with metal inserts or studs molded into the bodies. All have a large oversize handle to adjust flow and a manual bleed screw. Component parts are corrosion resistant.

In other news from Royal Coach/Buckner, David Truttman has been named manager of the newly-established Technical Services Section of the Marketing Department. Truttman will be responsible for technical literature and sales aids including show planning, visual presentations, co-op advertising and the Royal Coach/Buckner Advantage, a quarterly in-house publication.

GARDENING

Gardening tips available on radio

Gardens for All, The National Association for Gardening, based in Burlington, VT, has a radio service available to the gardening public— Gardens for All Radio. The service, a taped series of 90-second tips titled, "Helping Your Garden Grow" is being offered to radio stations throughout the country.

"It's one more step toward our goal of providing the most up-to-date information for helping gardeners to be more successful," said Jack Robinson,

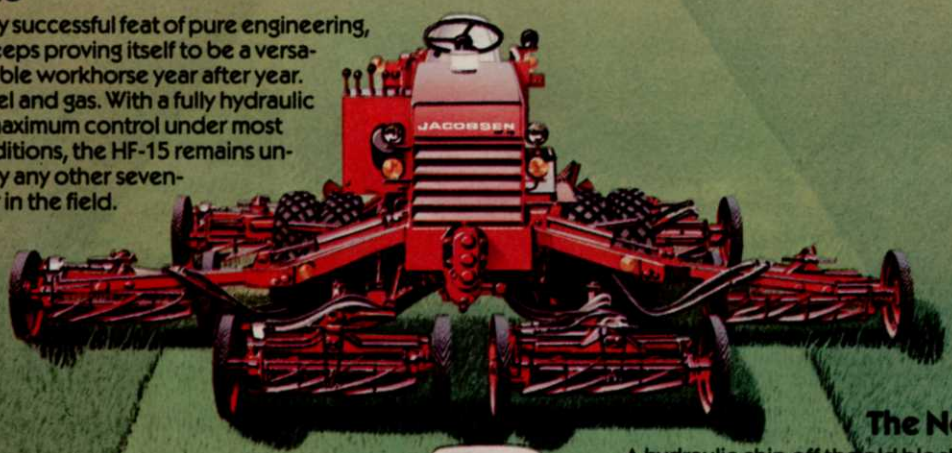
continued on page 14

HF-15 hydraulic technology presents The HF-5.

If at first you succeed...

The HF-15

A remarkably successful feat of pure engineering, the HF-15 keeps proving itself to be a versatile and reliable workhorse year after year. In both diesel and gas. With a fully hydraulic system for maximum control under most cutting conditions, the HF-15 remains unsurpassed by any other seven-gang tractor in the field.



The New HF-5

A hydraulic chip off the old block, the compact, highly maneuverable HF-5 gives you three, four and five-gang versatility plus the control and maintenance ease of a complete hydraulic system. The HF-5 is light on the turf and its hydrostatic variable speed transmission lets you handle most terrain or turf conditions without shifting. The HF-5 will mow up to 50 acres in eight hours and trim your budget down to size.

HF-5 Features

Out Front Mowing—Cuts ahead of the wheels to eliminate tracking.
Hydraulically Driven—Cuts wet or dry grass easily. Reels can be reversed from the operator's seat. Instant backlapping.
Diesel Engine—Power, efficiency and longer engine life.
Hydraulic Lift Mowers—84"—106"—133" cutting width for the HF-5. All at the operator's fingertips.
Ducted, Screened, Air-Cleaning System—Cleaner, more efficient cooling. Longer engine life.

JACOBSEN
TEXTRON
Jacobsen Division of Textron Inc.

Jacobsen. Engineered from the ground up.

Circle No. 119 on Reader Inquiry Card

Net Contents 2 Gallons/7.57 Liters
Diamond Shamrock
Daconil 2787
Flowable Fungicide
Turf Care
Danger

Proof that the best fungicide costs less.

There's no doubt why Daconil 2787® flowable fungicide is the preferred fungicide on America's tees and greens. It consistently delivers superior control of 9 major turf diseases.

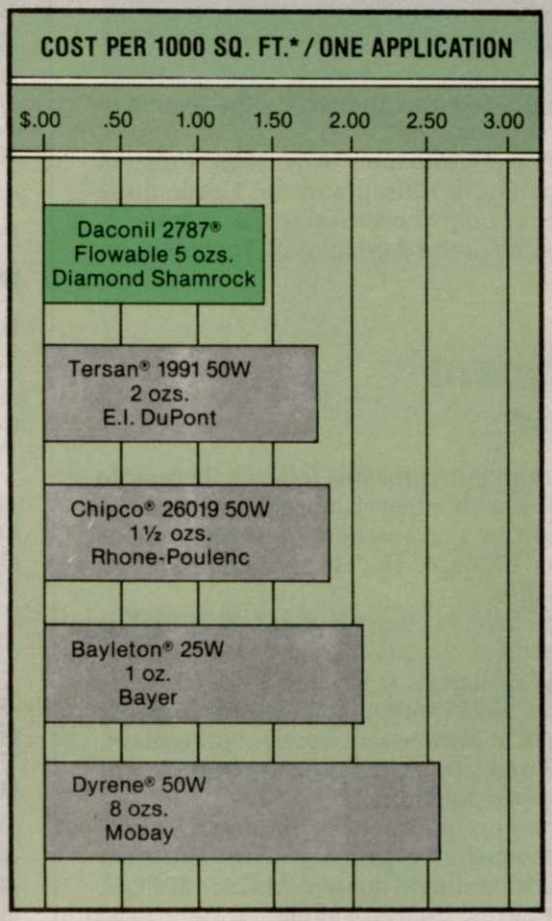
But what you may not know is that Daconil 2787 is more economical to use than the other leading fungicides.

Using a typical spray schedule, Daconil 2787 gives you greater savings on a per 1000 sq. ft. basis when it comes to controlling your most serious diseases — dollar spot (including benomyl-resistant dollar spot), Helminthosporium (leafspot and melting-out) and large brown patch.

Take a look at the chart. See for yourself how the cost of Daconil 2787 compares with the other leading fungicides on tees and greens.

Here are more reasons why it pays to use Daconil 2787. There's no need to add a costly spreader/sticker. Daconil 2787 already has it built in to assure full and even coverage for maximum disease protection.

And Daconil 2787 resists wash-off, so it keeps on working during heavy rains or watering.



*Costs based on manufacturer suggested retail unit price as of January, 1983.

What's more, in 15 years of continuous use, there has never been a documented case of resistance with Daconil 2787. Even on courses where it was applied at weekly intervals over many years.

The facts speak for themselves. You can't buy more effective, more consistent disease control on tees and greens than Daconil 2787.

Add to that the important cost savings you get spray after spray, and you'll see why Daconil 2787 gives you more for your fungicide dollar.

So this season go with Daconil 2787 from Diamond Shamrock. Because the best costs less.

Diamond Shamrock

Agricultural Chemicals Division
Diamond Shamrock Corporation
1100 Superior Avenue
Cleveland, Ohio 44114

Always follow label directions carefully when using turf chemicals.

Circle No. 105 on Reader Inquiry Card

LANDSCAPE UPDATE

253 future contractors compete

It was a record-breaking event. More than 253 students from 18 colleges and universities across the nation and 86 professional landscape contractors attended the Associated Landscape Contractors of America's Student Field Day in Dallas in March.

Students competed in 18 events ranging from surveying to irrigation. Industry professionals acted as judges for the events or observers.

ALCA Student Field Day Chairman was Jean Felsted. Richland College Professor Frank Milsap and the Horticulture Club at Richland College also helped coordinate the event.

Next year's field day will be at the Agricultural Technical Institute in Wooster, OH.

Middle management training available

Six seminars in six cities are planned for this fall to help middle managers and crewmembers with supervision potential. ALCA sponsors the seminars taught by Perrone and Ambrose, a management consultant firm in Chicago, IL. Three seminars were successfully presented this spring.

The fall seminars will be held in Phoenix (Sept. 8, 9), Dallas (Sept. 20, 21), Salt Lake City (Sept. 22, 23), Detroit (late Oct.), Boston (Nov. 20, Dec. 1), and Washington, D.C. (Dec. 2, 3).

ALCA Executive Director Gail Morgan told *Weeds Trees & Turf*, "Instead of being aimed at owners and upper management, these seminars are designed for mid-level managers and crewmembers with supervisory potential."

The first day the focus is on problem solving and team leadership. The second day is devoted to organizing work and time management. Interested persons should contact ALCA, 1750 Old Meadow Rd., McLean, VA 22102. (703) 821-8611.

NEWS *from page 10*

president of the non-profit organization. "According to our 1982-83 GFA/Gallup National Gardening Survey, there are 38 million gardening households out there who have a continuing need for new information, Radio provides a new avenue for Gardens for All to reach more gardeners with current news and tips.

Local radio stations and gardening centers can arrange to air the shows by contacting Gardens for All Radio, RFD Networks, Endwell, NY 13760.

CHEMICALS

Velsicol opens two Southern offices

Velsicol Chemical Corporation has opened district sales offices in Atlanta and Dallas. The offices will be staffed full-time to help provide greater sales support and communications.

"The Atlanta and Dallas sales offices have been added to provide a closer base for our growing sales force and growing product line," says Billy Adcock, agricultural products regional sales manager, South.

The Atlanta office is at 400 Wendell Court, Suite 426, Atlanta, GA 30336, (404) 696-8345. The Dallas office is at 8405 Sterling St., Suite 202, PO Box 169083, Irving, TX 75063, (214) 257-0511.

INDUSTRY

PGMS conference set for Cincinnati

The Professional Grounds Management Society will have its 71st Annual Conference and Trade Show Oct. 15-18 at the Cincinnati-Marriott Hotel.

The conference will highlight educational sessions, along with the trade show and horticultural tours of interest in the Cincinnati area. The conference will conclude with the Awards Banquet on Tuesday night.

CHEMICALS

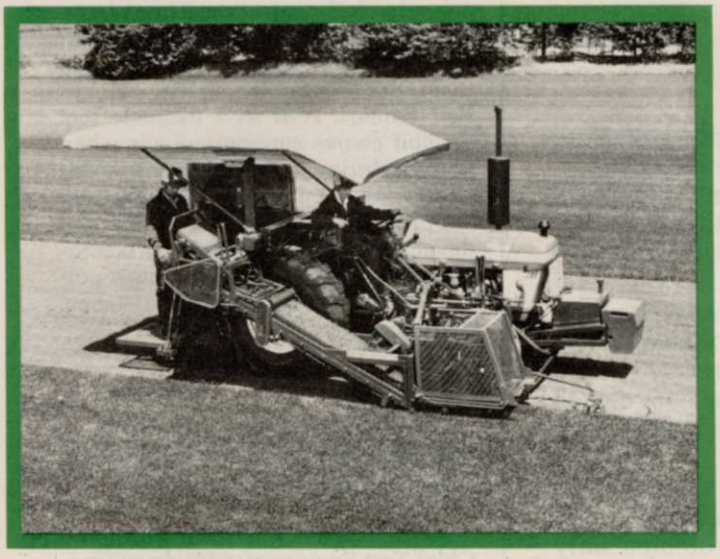
EPA approves Embark for Poa annua control

The Environmental Protection Agency issued its approval recently for the use of 3M's Embark plant growth regulator to suppress *Poa annua* seedhead development on golf course fairways. The approved rate is ½-pint per acre.

continued on page 16

TIME TO CHANGE

THE NEW BROUWER 1500 HARVESTER DOES IT ALL



AUTO STEER
- Can save 2 - 3 pallets per acre
- No strips or even strips for regrowth
- More uniform sod for landscapers
- Simple - can be turned on or off for auto or manual steering

CUTS CLOSE
- To irrigation pipes, ditches & fences
- Produces a clean uniform cut in all conditions
- Takes less topsoil from your farm
- Operates off the uncut turf

CROSS CONVEYOR
- New rubber conveyor makes stacking easier
- Other conveyors also available for slabbing
- Sod harvester eliminates high labour cost
- Suitable for both large & small operations

Can roll, slab or fold

THE NEW BROUWER 2000 SOD HARVESTER HAS IT ALL

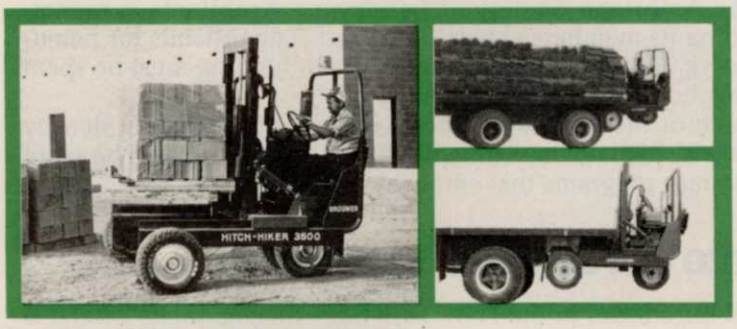
STANDARD PALLET CARRIER
- Standard pallet carrier - easy to load by forklift or manually
- Folds up for compact and easy transport
- Four wall piling cavity produces square and neatly stacked pallets

PALLET DISPENSER
- Releasing a full pallet of slabbed sod squarely and neatly stacked due to four-wall piling cavity.
- Single trip of a lever automatically releases empty pallet onto forks for easy stacking.

AUTO-STEER
- Automatic steering can be set to eliminate strips or leave a preset, consistent strip of sod for regrowth.

DELIVER YOUR SOD WITH THE BROUWER HITCH-HIKER™

Another Brouwer innovation in material handling
- Simple safe operation
- Very lightweight design
- Excellent performance on all terrain
- Quick hook-up and release to any truck
- 8" side shaft for tight loading
- High transport clearance
- 19 HP Diesel Engine
- Mechanical Drive System
- Immediate Pallet Return



BROUWER
TURF EQUIPMENT LIMITED

WRITE FOR FREE BROCHURES

Woodbine Avenue/Keswick, Ontario, Canada L4P 3E9/Telephone: (416) 476-4311/Telex 065-24161

Circle No. 102 on Reader Inquiry Card

GOVERNMENT UPDATE

EPA stops all registration in data dispute

The Environmental Protection Agency temporarily halted all registration in April until a ruling was clarified by the U.S. District Court for the Eastern District of Missouri. The Court found sections of the registration regulations "unconstitutional and unlawful" in a case brought against EPA by the Monsanto Chemical Co., St. Louis.

Monsanto brought the suit against EPA because its data alledgedly has been used to support registration of competitors products. EPA at first halted all registrations, then relaxed its position to register only those chemicals supported by data owned by the registrant and "me-too" chemicals supported by data used with permission of the owner.

While EPA and District Court lawyers attempted to explain the full impact of the court's ruling, EPA froze all registration applications. When lawyers suggested the ruling protected only Monsanto's data, a dozen other chemical companies filed a brief to the court seeking similar protection. The case may eventually reach the Supreme Court for further clarification.

EPA officials have felt it appropriate to consider all data on file when weighing the costs versus benefits of registration applications. Chemical companies dispute the use of their data for consideration of competitors products, claiming protection as a trade secret. The law and EPA have been vague for years on use of registration data. The controversy has finally reached court level and will be tested. Changes in sections of FIFRA are likely as a result.

Bill earmarks $1.1 billion in landscape work

The controversial Emergency Jobs Bill passed by Congress in March contains more than $1 billion in grants and funding for landscape improvement. $50 million of this is targeted for small business grants for tree planting and upgrading of recreational areas. Another $40 million is available to urban parks on a matching fund basis.

The American Society of Landscape Architects is recommending its members contact local and state officials for potential work. The Bill stipulates much of the funding must be spent by October 1983, so haste is advised.

Much of the funding is intended for high population density areas with high unemployment. Much of the money will be spent in summer programs that employ large numbers of unemployed.

State spray laws spread

A bill introduced in the New York State Senate in late March is similar to a bill recently defeated in the state of Washington. The bill requires commercial applicators to notify all adjacent property owners of spraying prior to application of pesticides. The New York bill, like the Washington bill, is the result of careless spraying practices being uncovered by local media.

NEWS *from page 14*

Embark PGR, introduced by 3M in 1978, has been used extensively to reduce mowing costs on low-maintenance grasses and difficult-to-mow areas by golf course superintendents, highway maintenance crews and others. Turfgrass researchers at Michigan State and Pennsylvania State identified Embark PGR as a valuable tool for golf course superintendents when applied during the spring before seedheads have emerged. The product suppresses *Poa annua* seedhead development, which results in healthier root growth, enhanced summer color and increased drought-resistance, the researchers say.

INDUSTRY

Jacobsen names Kepner Chief Test Engineer

Kent G. Kepner has been appointed Chief Test Engineer for Jacobsen Division of Textron, Inc.

In his new position, Kepner will be responsible for establishing testing and evaluation programs for Jacobsen

prototypes and components at the company's Racine test lab and at field sites in Arizona, Texas and Florida.

Previously, he was test engineer supervisor. Kepner joined Jacobsen in 1970 and has held a variety of test engineering positions in Racine and at the company's providing grounds facility in Phoenix, AZ.

INDUSTRY

Teledyne opens new Memphis headquarters

The Teledyne Total Power Co., opened its new headquarters in Memphis, TN, in April. The company was formed late last year to handle all marketing, engineering and product support of Teledyne Wisconsin air-

cooled gasoline and diesel engines.

The new facility includes administrative and engineering offices, warehouse accomodations for a large stock of engines and parts, engine dynamometer test cells and accomodations for making engine revisions and modifications.

President Lee A. Delaney explained the company's decision to locate in Memphis.

"Memphis is emerging as the transportation hub of the U.S. The availability of excellent shipping facilities, the city's central location and its business climate were all instrumental in our choice of Memphis for our headquarters," said Delaney.

From the facility, Teledyne Total Power is now distributing the full line of Wisconsin, Wisconsin-Robin and Wisconsin Diesel air-cooled engines.

TREES

NAA establishes arborist foundation

At ceremonies in Wooster, OH, the National Arborist Association officially launched the Paul Tilford National Arborist Foundation, Inc., by installing Paul Tilford as the first charter fellow of the Foundation. Dr. Tilford was the first executive secretary of the National Arborist Association, serving from 1940 to 1965.

The purpose of the Foundation is to provide a source of funding for projects, studies and grants pertinent to the needs of good tree care. Equipment research and evaluation, tree care safety, and personnel studies are among the early projects to be funded.

CHEMICALS

Betasan frequency rates increased

New label registrations, recently approved by the EPA, increase application frequencies and application rates for Stauffer Chemical Company's Betasan herbicide.

Up to 25 pounds per acre of Betasan can now be used in two or more applications each year for control of crabgrass, goosegrass and poa annua in home lawns, turf and golf course greens and fairways.

"The new application frequencies give people who need to control more than one grass an option to do so by split application of a single herbicide," says Herbert M. Day, sales manager of Stauffer's Specialty Sales Department.

Stuaffer recommends an application rate of 7½ to 10 pounds in the early spring for the control of crabgrass, a second application of 7½ to 10 pounds in late May for goosegrass control, and a fall application of 10 pounds in late summer for poa annua when these three weeds are problems in turf areas.

In regions where goosegrass or poa annual are the only or main problem, a full rate of 12½ pounds should be used.

Betasan also is registered for control of redroot pigweed, barnyardgrass, lambsquarters, shepherds purse and deadnettle.

GOLF

Columbia fire delays production until August

Columbia Car Corporation of Deerfield, WI, expects to be back up to full production by August after a fire in April destroyed one of its seven bays in

We Made It Simple!

- QUALITY — Built with Swiss clocklike precision.
- LIGHTWEIGHT — With the comfort of the user in mind.
- ACCESSIBLE — A durable self-lubricating and external pump assembly.
- SIMPLICITY — Insures cleanliness and longer wear. No tools necessary to dissemble and repair.
- PRICING — Here's one instance where you pay less for the best.

5 GAL. (20 K)
ALSO AVAILABLE IN
2½ GAL. (10 K)
3½ GAL. (15 K)

BIRCHMEIER

has the Back Pack Sprayer for you —

FOR MORE INFORMATION

TREBOR CORPORATION

4047-A JONESBORO ROAD • FOREST PARK, GA. 30050 • 404-366-0957

Circle No. 135 on Reader Inquiry Card

M-C MATHEWS COMPANY

Lawn Genie pick-up mower

Saves work all year 'round

- Spring - Thatches, renovates and picks up in one pass
- Summer - Mows and loads clippings in quick-dump hopper
- Fall - cleans up leaves, twigs and trash

Change mowing or thatching blades in seconds with M-C's patented hanger design.

Four cutting widths from 36" to 72", engine driven or P.T.O.

Call or Write Today
Mathews Company
P. O. Box 70
Crystal Lake, IL 60014
815/459-2210

Iron Horse Quality Equipment

Circle No. 125 on Reader Inquiry Card

the warehouse and shipping area. Damage estimates were in excess of $1 million.

Executive Vice President D.V. Conway told WEEDS TREES & TURF some cars that were on line during the fire are being completed, but full production would not resume until August.

Columbia Car President Joseph Noll credited the area's fire department with keeping the blaze from spreading. The company was able to resume shipping golf cars three days after the fire.

No injuries were reported.

Columbia Car is one of the nation's major manufacturers of golf cars.

TURFGRASS

Rothenberg re-elected president of PTC

Michael Rothenberg, golf course superintendent of the West Shore Country Club, Camp Hill, PA, was re-elected president of the Pennsylvania Turfgrass Council. He has served on the board of directors since 1979. Rothenberg, a graduate of Penn State University, has been in turfgrass management since 1971.

Other officers elected at the Pennsylvania Turfgrass Conference were Steven Campbell, Aronimink Golf Club, Newtown Square, PA, first vice president; R. William Marberger, sales manager-turf, Mid-Atlantic Equipment Corporation, Collegeville, PA, was elected second vice president; and Christine King, Bellefonte, PA, was re-elected executive secretary-treasurer.

Twelve directors were also elected to the board.

TREES

Davey acquires Memphis tree service

The Davey Tree Expert Company of Kent, OH, has purchased Suburban Services of Memphis, a tree care service company that has been in the Memphis area since 1975.

The company will continue to operate under the name of Suburban Services and as a division of Davey Tree. The previous owner, Thomas G. Dedrick, will remain as district manager.

Davey Senior Vice President Howard L. Eckel, Jr., said that the acquisition will provide an established base for tree care operations for the company in the Memphis area and enable Suburban Services to utilize Davey's advanced sales and personnel training and modern research and technical service facilities.

Davey Tree is the original and largest tree service company in the country.

TREES

Lesh named 1983 president of NAA

Lee Lesh is the 1983 president of the National Arborist Association. He was elected at the Annual Meeting in New Orleans, recently.

Lesh has served as an NAA officer and director since 1977. Originally from northern New York where he received his early training as an arborist with Monroe Tree and Landscape, Inc., Lesh settled in California in 1964. He founded Lee's Tree Surgeons in Saratoga, CA in 1969. His firm is engaged primarily in residential, institutional and commercial tree care.

Clean Up Lakes, Ponds, River Fronts

Mud Cat's Aquatic Weed Harvester restores ecological balance through fast, efficient removal of both floating and submerged weeds. Independently controlled paddle wheels permit easy maneuvering, resist clogging in heaviest weed beds. Unit operates in inches of water to cut close to shore. Easily moved from job to job on trailers rated for highway speeds. Available in cutting swaths to 8 feet, operating depths to 5 feet, capacities to 660 cubic feet. Optional shore off-loading conveyor unit permits faster turnaround.

MUD CAT®
NATIONAL CAR RENTAL

P.O. BOX 16247, ST. LOUIS PARK, MINN. 55416 U.S.A.
PHONE TOLL-FREE 800-328-7333
FROM MINN. OR OVERSEAS CALL 612-893-6400
TELEX 29-0767

A Division of National Car Rental System, Inc.

Circle No. 128 on Reader Inquiry Card

Change spray tips clean strainers in seconds... *without tools!*

New QuickJet system

New QuickJet System minimizes your service time and helps assure accurate delivery. The self-aligning quick "on/off" cap can be used with all interchangeable spray tips. The caps are available in 8 colors for color-coding different tip sizes.

QUICKJETS SAVE TIME AND MONEY.

Send for QuickJet bulletin and data sheets.

Spraying Systems Co.

Wheaton, IL 60188 Telephone 312/665-5000

Circle No. 132 on Reader Inquiry Card

© 1983 Kubota Tractor Corporation

IT CAN'T BE DRIVEN INTO THE GROUND.

Put a Kubota diesel tractor to work and watch it go. Watch it load, mow, rotary till and dig. There's just one thing that you'll rarely see a Kubota do. Quit.

That's because it's powered by a strong diesel engine. It operates with less noise. Less vibration. And with no carburetor, spark plugs or distributor to wear out, there's less maintenance.

There's still another reason Kubota tractors keep running on and on and on. These small and mid-sized models all come with features usually only found on larger tractors.

The L355SS model digging in here is a good example. A 4-cylinder 29 PTO diesel workhorse, it does all kinds of commercial landscaping, industrial and loader tractor jobs.

And the L355SS is the only tractor of its size with hydraulic shuttle-shift. It goes from forward to reverse without using the clutch or gearshift. Thanks to power steering and our unique 4-wheel-drive system with bevel gears, this tractor is also remarkably maneuverable in a tight spot.

The L355SS and all Kubota B- or L-Series models are guaranteed to be dependable for a long time. Our two-year limited warranty is unmatched by other manufacturers. Your dealer has complete details.

So stop by your Kubota dealer soon. While you can't drive our tractors into the ground, you can take 'em for a test drive.

KUBOTA
Nothing like it on earth.

Circle No. 213 on Reader Inquiry Card

LANDSCAPE LOG

By Douglas Chapman, horticulturist, Dow Gardens, Midland, MI

AUGUST JOB FOCUS

1. **Turf**
   a. **planting new lawns**
   b. **fertilization**
2. **Deciduous Tree Pruning**
3. **Pine Planting**
   a. **transplanting**
   b. **late season insects and diseases**
4. **Continued Heavy Maintenance**
   a. **mowing and weeding**

August in the Northeast and North Central states is the beginning of fall. The soil is still warm, but we see the return of rain after a normally dry June and July. Further, the day length, or photoperiod, is still long enough to sustain growth. Landscape development is certainly centered on three broad categories: 1) turf; 2) deciduous tree pruning; and 3) pine planting.

TURF

August in Central Michigan and through the Northeast is the *one* single best time to plant new lawns (while spring is a *second* prime time for new lawn installation). The soil temperature is high and the air temperature is beginning to cool. By the second week of August fall rains commence and almost every morning we have dew on the grass. The abovementioned conditions are perfect for new lawn installation. The weed season is essentially over, and one can install a new lawn, while expecting almost complete success with minimal weed seed germination.

Each part of the country will have different recommended grass types, but it should be recognized that a grass seed mixture is probably better than any one individual cultivar. It is better due to the fact that there is more environmental tolerance and insect and disease resistance with a broad variety of grass types than with a single cultivar—the same consideration as with trees, the greater the variety of species, in general, the more disease tolerance one can expect. In the Great Lakes area, a mixture of 60% fescue [cv. of creeping red or chewings], 20% Kentucky Bluegrass, and 20% fine leaf perennial ryegrass, e.g. Manhattan Perennial Rye, establishes quickly, while being medium to low maintenance. The individual cultivars of bluegrass, fescue and fine leaf perennial ryegrass will change as new ones are developed, but the concept of a mixture of grasses, emphasizing disease resistance and low in nutrient requirements, will probably result in the type of lawn that fits best a large area landscape, park, or even home grounds.

Fertilizer, depending on the program one uses, is also important during mid-to-late August. One should apply the equivalent of approximately one pound of actual nitrogen per 1,000 square feet, while emphasizing potassium as well (five pounds of a 20-5-10). Most fertilizer recommendations are based on the amount of nitrogen applied per 1,000 square feet. Contemporary research has shown that relatively high quantities of potassium are also important to stimulate carbohydrate metabolism, while increasing disease tolerance, drought, and winter hardiness. Generally speaking, phosphorus deficiency is difficult to induce in the average lawn. Most cool season grass species are effective extractions of this macronutrient and, therefore, small quantities are all that are needed. Note—with all fertilizers, the lawn should be dry and the fertilizer watered in soon after application.

DECIDUOUS TREE PRUNING

The month of August is a good time to prune deciduous trees. Most of the terminal and diameter increase, that is plant growth has occurred and, physiologically, it has been shown that there is a good wound response at this time. For years nurserymen removed suckers and unwanted branches during this month. They took advantage of the foliage being on the plant as long as practical, thus adding dimension to the tree trunk but removing the unwanted growth at a time when the plants callused over most rapidly. The only cautions to August pruning would include: pruning of crab apples during wet periods, thus encouraging fire blight, and pruning of elms. Hart at Michigan State University suggested that wounds on elms during August may attract elm bark beetle, thus it could be a factor in late season Dutch Elm Disease infection. Other than these two considerations, most trees, including bleeders, such as Sugar Maple and birch, respond well to late summer pruning.

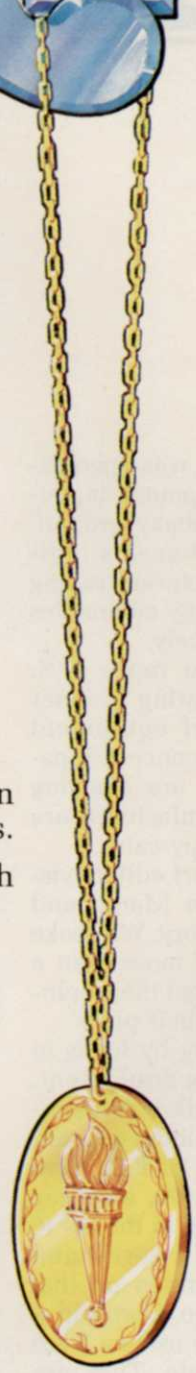
PINE PLANTING

August represents the single best time to transplant pines in the landscape. Although spring transplanting results in 80-90% success, transplanting of pines during August usually results in 95% of greater success. The conditions of warm soil encourages root growth. Frequent showers, high humidity, and relatively long photo-period combine for this one plant genera's transplanting success. For most success, transplant the pines balled and burlapped. During the '60's some of the early photoperiodic researchers showed that pine roots continued to grow during August and September under that particular day length even though vegetative growth had stopped. This single factor probably best explains the success of pine transplanting in August. The pine roots have opportunity to become established before the onslaught of winter. Many landscapers have noted that staking and heavy mulching also contribute to late season transplanting success. Does this mean that hemlock and juniper also exhibit the same increased planting success? In the case of these plants, the literature and practical experience have not been as clear. Junipers, hemlocks, and spruce transplant relatively well throughout the month of September and early October if mulched heavily.

Late season insects and diseases can have some impact; therefore, one should be looking for extremely heavy infestations of mites (two-spotted or red), aphids, scale, and walnut caterpillar. Diseases to be on the lookout for are few but important. If an extremely wet August, fire blight on crab apple, hawthorn, and mountain ash and needlecast on pine can be problems. **WTT**

MERIT

If they held an Olympics for Bluegrass, Merit would win the Gold



That's because this low maintenance variety so often outperforms the biggest names in Kentucky Bluegrass.

The record shows that Merit is consistently rated high in turf quality and color as well as disease-resistance, including good resistance to leaf and dollar spot.

A variety that is praised for its excellent spring color, Merit also holds its own when subjected to minimum irrigation and fertilization.

Look at the record. In 1972 NE-57 trials, in a five-year New Jersey test, in a New York trial, at an eight-year Purdue study, a three-year Ohio trial and in a four-year Missouri test, Merit often outperformed such bluegrasses as Baron, Nugget, Fylking, Adelphi, Glade and Bonnieblue.

Merit...it's a Kentucky Bluegrass worth looking into

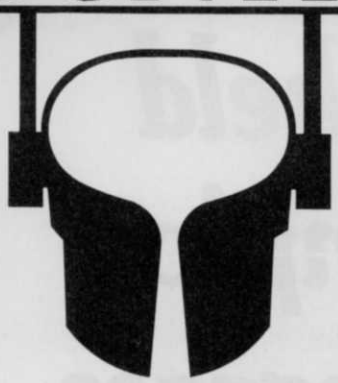
FULL CIRCLE, INC.

P.O. Box 49 Madras, Oregon 97741 (503) 475-3877

CENEX A Subsidiary of Cenex

Circle No. 114 on Reader Inquiry Card

REPORT · FROM IRON COUNTRY



The inside story on the turf equipment market today.

By Bruce F. Shank, executive editor

One year ago there was speculation some turf equipment manufacturers were on shaky ground. Today, that thought seems ludicrous, with manufacturers saying there may be too many companies and a shake-out is likely.

Furthermore, two more U.S. companies are preparing to enter the commercial turf equipment market and there is concern Japanese manufacturers are studying the market. U.S. manufacturers are concerned about "copy-cats".

Weeds Trees & Turf editors visited Iron Country in March and April to get the full story. We spoke to representatives of more than a dozen companies to get their opinions and to learn of their plans.

Most of the activity by far is in commercial mowing equipment, especially in the walk-behind intermediate (30- to 60-inch) rotaries. George Schaefer, Jr., of F.D. Kees Mfg. Co., said, "In 1975, a survey we did showed a void in the 32- to 50-inch walk-behind rotaries and we focused our attention on that void. Three years ago, Toro did a similar questionnaire using a Kees mower as an example. They are aware of the potential."

Price, maneuverability and speed are reasons contractors cite for buying walk-behind intermediates. They are replacing some of their trim mowers and large riding mowers with the intermediates (see Mower Efficiency, April issue).

The concept of walk-behind rotaries was developed in the 1930's by two men, each separately. Howard Phelps, the founder of Sensation, in Nebraska and Leonard Goodall in Missouri. "My first rotary had bicycle tires and an electric motor from a Hoover vacuum cleaner," says Phelps. "I've still got it here in my living room in Raleston, Nebraska, a suburb of Omaha. I also hold the patent for the first grass catchers for rotary mowers." Phelps began commercial production in 1940 and sold the company in 1966. Last year Gilson Brothers purchased Sensation and is stepping up its marketing efforts.

Leonard Goodall of Warrensburg, Missouri in the 1930's, built a company and distribution network which included the then Bunton Seed Co., in Louisville, Kentucky. "Bunton had the Eastern Seaboard for Goodall until we started making our own mowers and Foley bought Goodall in the mid-50's," said Gilbert Brown, Bunton vice president. In 1969, Bunton bought all rights to the Goodall line. "Between 1949 and the mid-70's the market for walk-behind intermediates was served by only a few companies. Today, there are 9 companies with similar products and more coming," Brown says.

Ransomes Bobcat claims to be the largest current manufacturer of walk-behind intermediates. Bobcat intermediates were first produced in the mid-70s. Ransomes, a British company, purchased Bobcat in 1977, adding a reel line to Bobcat's rotaries. Many landscape contractors speak highly of the Bobcat intermediates. Dick Lehman of Ransomes attributes the company's success to simplified operation and maintenance as well as a good distribution network.

F.D. Kees also entered the walk-behind intermediate market in the mid-70's after market research showed potential. Sensation and Yazoo were old-line companies with products in that category.

WE GEARED OUR GANG TO LAST.

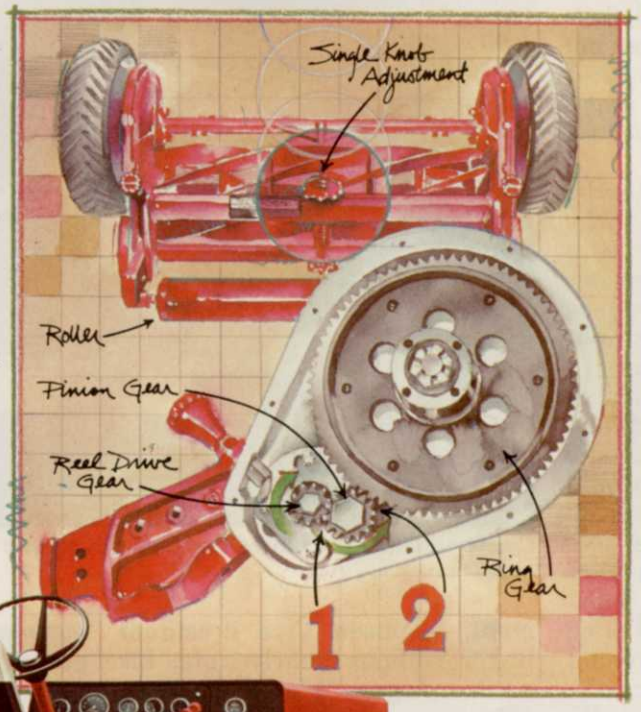
AND CUT YOUR COST OF CUTTING.

From day one, Toro has engineered the kind of gang mower you want for high acreage formal cutting.

A mower that keeps you cutting. Gets the job done.

Like our Spartan® gang mower, direct descendant of Toro's first pull type reel mower 60 years ago, and now the heart of our 7 or 9 unit Parkmaster® and 3, 5, 7 or 9 unit Universal frame.

Its durability is exemplified by the gear drive we use to transmit power from the wheels to the 5 or 7 blade reel.



Unlike the drive of one of our best known competitors, for example, it has few moving parts and just two major points of contact. That means less downtime, fewer repairs and parts replacements.

And, besides its time proven durability, this simple gear drive system gives you what you want most in formal cutting. A more consistent quality of cut.

And Toro gears its gang with other features that keep you cutting. Like single knob bedknife-to-reel adjustment, a perfected roller system, and convenient height of cut adjustment from ½" to 2½", depending on wheel combinations.

Call your Toro distributor. He'll tell you more about our Spartan gang mower and its working partners. Parkmaster, for up to 18'6" widths of cut. And Universal frame, for 7' to 21' widths. He'll show you how Toro quality can cut your cost of cutting.

TORO®

THE PROFESSIONALS THAT KEEP YOU CUTTING.

"Toro" is a registered trademark of The Toro Company, 8111 Lyndale Ave. So., Minneapolis, Minnesota 55420.

Circle No. 134 on Reader Inquiry Card

Since then Gravely, Deines, and Exmark have joined the group. Still, Toro and Jacobsen wait to enter the intermediate market. Representatives from Toro and Jacobsen did not want to reveal their plans for this type of mower but distributors have told *Weeds Trees & Turf* both companies have prototypes in testing with introductions not far off.

One potential problem may be what happens to distributors who carry Toro or Jacobsen lines with another company's intermediates when Toro and Jacobsen introduce competitive models. One distributor felt it will take two years or more for Toro and Jacobsen to build up inventories of walk-behind intermediates if they choose to enter that market. This would give distributors time to evaluate the competitiveness of the new products and whether both lines can be together on the same showroom floor. He also expected price and new engineering by Toro and Jacobsen to make a difference.

All the excitement is not walk-behind intermediates. Toro has been pleased with the reception of its 11-bladed reels it introduced last fall. "We have more products in development at Toro for the commercial market than we have ever had before," says Steve Williams, manager of the commercial products group. "We will introduce more new products this year and next year than any previous time. This reflects our continuing commitment to product research and development." Toro will announce its 1983 introductions in August at its annual dealer convention.

Denny Brown of Toro is spearheading an experimental program using a computer to balance a customer's needs with an appropriate mower. "Construction of a mower can mean the difference between two years and eight years of reliable service," Brown says. "Down time is critical in the commercial market. Some mowers may cost less at first, but cost more later when they don't hold up or last as long."

Both Toro and Jacobsen have installed computer-aided design systems to speed up product development. Jacobsen Vice President Roger Thomas clearly states his company's goal, "We are making a unique product for the industrial marketplace. We are not in the throw-away business." "More and more mowers will be hydraulic," Tom Carter, Jacobsen vice president of engineering said. "At first we had to get parts from aircraft parts suppliers, but now we are custom designing our own parts to increase the efficiency and reliability of hydraulics. Solid state components may tell the mower operator of the future that the hydraulic fluid is too hot or the pressure has dropped; preventing damage and prolonging equipment life."

Cushman-OMC Lincoln's *Grass Caddy typifies a new emphasis on grass collection.*

Hydraulics are credited for reducing the weight of mowing equipment, improving the cut by increasing the rotation speed, simplifying changeover of attachments, and eliminating a number of moving parts subject to wear. Hydraulics were first applied to rotary equipment by Excel.

National Mower, the oldest manufacturer of powered reel mowers in business, has built customer loyalty on keeping their mowers as simple and as rugged as possible. "Rotaries are not as safe around people," says John Kinkead, National's president. "Reel mowers operate with less horsepower and at lower rpm, saving fuel consumption and engine wear. Traditionally they are more popular in the Northeast and West. Reels have difficulty cutting grass higher than the radius of the reel, usually 3- to 4-inches. Beneath that, they tend to cut cleaner than rotaries. Regular blade sharpening is needed and is admittedly more difficult than with rotaries. Distributors are going to have to change their reel service to satisfy markets like lawn care," Kinkead said.

The reel market is growing as well. In addition to the older companies such as Toro, Jacobsen, National, Locke, and Roseman, are recent entries to the U.S. market, Brouwer Turf Equipment Ltd. of Ontario, Canada, and Ransomes of the United Kingdom. The reel gang, especially hydraulic reels, is holding its own in the golf and parks markets as a good cut for large areas. Triplex mowers, as well, are being used more in fairways to reduce *Poa annua* and disease by clipping removal.

Clipping removal for both reel and rotaries is growing in priority for product designers. A major part of the new commercial line about to be announced by a new entry this fall is a grass catching system. Cushman's new Grass Caddy for

Create a Colorful Difference

WITH

Pinto BRAND WILD FLOWER MIX . . .

the colorful and decorative answer for low maintenance landscape areas.

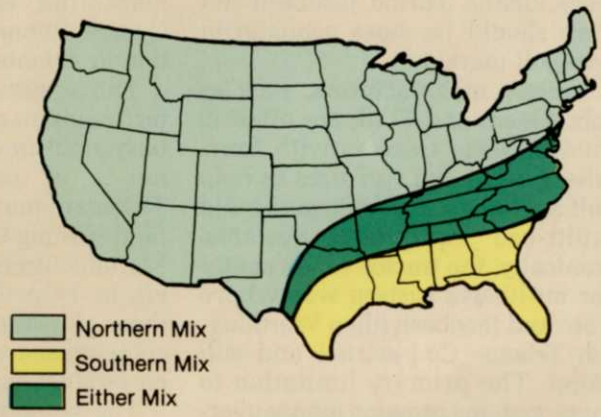
Multi-colored blends of annuals and perennials like Chicory, Scarlet Flax, Bachelor's Button, Baby's Breath and Painted Daisy. A blend that reseeds itself for lasting beauty year after year.

Pinto is ideal for any landscape — parks, roadsides, golf course roughs, home gardens, industrial and landfill sites. And perfect for areas where you don't have to mow.

Available either as 100% wild flowers, or mixed with a fescue as a Meadow Mix to aid soil stability.

It's custom blended in a Northern or Southern mix. So wherever you live, your Pinto order will be perfectly adapted for your climate. It will make this year the start of many colorful years to come.

Pinto Wild Flower Mix: the easy, low-maintenance way to naturalize your surroundings.



For more information or to place your Pinto order, call:

- **Ray or Lance Bentley, Lofts/New York (518) 677-8808**
- **Tim Bowyer, Sunbelt Seeds, Inc. (404) 491-1311**
- **John Sours or Grant Jurgensen of Jacklin Seed Company (208) 773-7581**

LOFTS

Lofts Seed Inc.
Bound Brook, New Jersey 08805

Jacklin Seed Company
Post Falls, ID 83854

Circle No. 122 on Reader Inquiry Card

Walk-behind intermediate *rotaries from Ransomes-Bobcat.*

its Front Line riding rotary mower is a good example of the attention to grass collection. Much of this is in response to the growing importance of commercial lawn care.

Another important item in product development is a zero turning radius heavily promoted by Excel with its twin joy stick steering. Excel has also responded quickly to the grass collection and multi-use concepts.

Mechanical thatch management is another feature being considered by commercial equipment manufacturers as a partial result of lawn care. The simple device offered by Snapper in its consumer mowers may work its way into the commercial market as an option to powered rakes and vertical mowing.

The benefits of coring are being realized by non-golf markets at the same time. Aerifying attachments as offered by Ryan, Dedoes, Hahn, Kees, Olathe, Turfco, Jacobsen and Toro should be more common in non-golf markets.

Tractor manufacturers, such as John Deere and Ford, are offering medium-size tractors with four-wheel drive and turf tires to help golf and landscape managers build multi-use equipment systems. Ironically, the tractor as the center for multi-use system was where Toro and Jacobsen (then Worthington Tractor Co.) started and still excel. The primary limitation to these systems remains maneauverability.

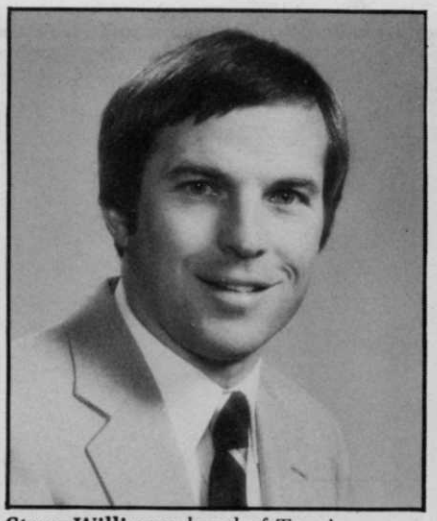
The trim rotary mower market faces some increased pressure as a result of new safety regulations. Commercial mowers are exempt from blade brake systems now required on consumer mowers. Commercial equipment producers are concerned some consumer mower manufacturers might try to use the commercial market to avoid the safety regulations. Commercial buyers should demand the higher standards set by commercial mower manufacturers, such as ball bearing wheels, heavy-duty housing, and commercial grade engines.

U.S. engine manufacturers are fighting back against companies like Honda who gained market share recently. Briggs and Stratton introduced a much-improved I.C. series of engines last year recapturing some of the Honda market. The chief problem, according to George Schaefer of F.D. Kees, is Honda developed a 4-cycle engine with better oil circulation than U.S. engines and claimed longer life. This concern also increased the popularity of 2-cycle engines, such as on Lawn Boy. Briggs responded with the I.C. engine that has greater life and easier rebuilding. "Our buyers have now started asking for Briggs engines over Honda," says Schaefer. "Briggs was down to 40 percent of our production and now its back to 60 percent."

Teledyne Wisconsin is repositioning to increase its engine market share under the name Teledyne Total Power. Teledyne also cooperates with a Japanese company on the Robin engine line. Kohler and Onan increased their marketing efforts at the Golf Course Superintendents Convention in Atlanta in February.

The engineers of commercial turf equipment manufacturers are busy right now trying to meet the needs of commercial buyers. There are many test models in the field waiting to go into production. Manufacturers now have computers to help their engineers meet those demands. Like Toro, other companies are working vigorously on product development.

The potential hurdle to the entire process is the distribution system. "Next to product quality, is a



Steve Williams, *head of Toro's commercial turf equipment group.*

company's distribution," says Dick Lehman of Ransomes-Bobcat. "As we expand our product lines, distributors who carry more than one company's line are faced with pressure from both the manufacturers and the customers. There is great potential in certain markets for new equipment distributorships."

Manufacturers may try farm equipment distributors as an option to turf equipment distributors. Farm equipment manufacturers have an inside track in that case. Farm equipment distributors could also use the extra business.

Garden centers with commercial lines are also an option, but consumer equipment manufacturers would have an edge there. The overall situation does seem to support the need for new commercial turf equipment distributors.

Conrad Langenberger, vice president of marketing for Simplicity, told attendents of the Reinders Turf Equipment Show in Milwaukee, "Manufacturers are pinched, and many are shoring up their distributors. By 1984, housing starts will reach the magical two-million mark. Riding mower sales will increase through 1986, go down, then resurge again in 1988. I expect gas engines of the future to have longer life expectancies."

The volatility of the consumer equipment market is dangerous. Equipment manufacturers may want to stick more closely to the stable commercial market.

WTT

GET THE TRIMMER/ CUTTERS WITH THE STRONGEST ROOTS.

HOFFCO HEAVY-DUTY BRUSHCUTTER, EARLY FIFTIES.

In 1952, Hoffco built a special gasoline-powered portable brushcutter for the U.S. Forestry Service: A fast, dependable way to clear firebreaks and save trees.

In 1972, Hoffco engineered and built the first gasoline-powered monofilament line trimmer for homeowners: A quicker, better way to trim along walls and edge along walks.

In 1983, Hoffco makes the only full line of gasoline-powered trimmer/cutters: Faster, easier ways to trim grass, cut weeds, clear brush.

You get gasoline-powered portable clearing equipment that handles the tough jobs, the easy ones and everything in between. You get a well-engineered, quality-made product that works right and holds up. You get parts service you can depend on for years to come.

You can get it all from Hoffco, the company with the strongest roots. Ready for the growing seasons ahead.

HOFFCO inc.

TOUGH ON THE JOB. EASY ON YOU.

WW850 10" Brush Blade, 11" Tri-Kut Weed Blade and Tri-Line Monofilament Head standard equipment.

JP420 8" Tri-Kut Weed Blade, 2 line Monofilament Head standard equipment, 9" Brush Blade optional accessory.

WT 160H 8" Tri-Kut Weed Blade, 3 Exit Single Line Monofilament Head standard equipment.

Hoffco, Inc. • Dept. WTT4-783 • 358 N.W. "F" St. • Richmond, IN 47374

Circle No. 116 on Reader Inquiry Card

New Dursban 50W. Awesome bug control is here.

Now DURSBAN* insecticide, with three formulations, gives you awesome control of bugs, grubs, mites, chiggers, ticks, fleas and weevils.

New DURSBAN 50W is a wettable powder especially for professionals who prefer lower phytotoxicity in treating turf, ornamentals and trees. The elimination of chemical solvents makes this possible. DURSBAN 50W gives extended residual control...eight weeks and more compared to four or six weeks with most other brands.

So now you can do the whole job with DURSBAN 2E, concentrated 4E and new DURSBAN 50W wettable powder. That assures you of maximum bug control and minimum inventory problems.

With all the advantages, you'd expect DURSBAN to cost more. Actually it costs less than most other brands. You can treat 1,000 sq. ft. for only 35¢! And when you use DURSBAN, it means fewer callbacks and more satisfied customers. That's a big step in the right direction.

DURSBAN products are available from your Dow distributor. Also ask him about our "DURSBAN delivers the goods" incentive program. Be sure to read and follow all label directions and precautions. Agricultural Products Department, Midland, Michigan 48640.

DURSBAN 50W

Now you're a giant step ahead.

DOW*

Dow Chemical U.S.A.

*Trademark of The Dow Chemical Company.

3915

Circle No. 111 on Reader Inquiry Card

Sleek and Wiser

As construction picks up, the landscape industry should not forget its efforts in cost control, renovation, product efficiency, and customer education.

By Bruce F. Shank,
executive editor

The ability of the golf and landscape industries to weather economic storms has been proven once again. Relatively unscathed and trimmed down to fighting weight, the landscape industries have begun modest growth. From most indicators, that growth should accelerate significantly beginning this fall and next spring.

In the simplest terms possible, the landscape industries do well in recession because two primary segments, golf and lawn care, are relatively independent of recession. A third segment, landscape construction, has bolstered its cash flow with maintenance and cut its labor and supply costs. The sod and nursery markets, however, have suffered in some areas.

The service industries, such as landscape maintenance, tend to fare well during recessions since they can cut back quickly and carry smaller overhead than manufacturing industries.

Parts of the landscape industry dependent upon government funding have dealt with frozen budgets at worst during the recession. Public demand for athletic areas has created strong support for funding.

Trends toward multi-family housing and contract landscape maintenance have shored up declines in single-family housing construction and added to the demand for outdoor recreation. Housing starts have now picked up significantly while these trends continue.

> Service industries tend to fare well during recession.

Weeds Trees & Turf monthly market surveys have shown equipment purchases by landscape and golf managers were affected more than chemical purchases. Equipment buying has been limited to necessary replacement and types of equipment which reduce labor costs. Older equipment and an increasing awareness of equipment efficiency should combine to cause a major equipment buying spree in the next two years.

The war against labor costs will continue. Advances in herbicides and growth regulators are being accepted by landscape managers. As agricultural chemical companies seek to bolster income lost from a weak farm economy, they renew their interest and investment in the specialty markets.

Uncertainty in the agricultural markets, however, with the Payment in Kind (PIK) program and lagging exports, is causing a few agricultural companies to pull back in all areas. Nearly 40 percent of the nation's cropland has been removed from production under the PIK program.

Farm seed companies are taking the blow from the PIK program the hardest. Herbicide makers are warning farmers of the problems caused by neglecting weed control in fields that will be put back into production. Fertilizer manufacturers are also facing drops in sales.

Amidst the problems in agriculture, the landscape market stands out as a reliable, healthy customer.

The good future for the landscape and golf markets adds to stability. The U.S. Commerce Department says builders began on

Your On-the-Job Turf, Tree & Ornamental Pest Control Guide

Sponsored by Stauffer Chemical Co.

Published exclusively by Weeds, Trees & Turf as a 16-page supplement to its August issue, TECH-SPECS is an in-depth, definitive field guide designed for the specific on-the-job information needs of outdoor pesticide applicators.

Twenty different weed and insect specialists will contribute the expert advice and insights that will make TECH-SPECS a useful reference source in the months ahead.

TECH-SPECS will provide quick reference tables and specifications, including charts giving precise herbicide application dates for all parts of the United States, as well as information on placement, rates and mixing.

Be sure to look for TECH-SPECS in the August issue of WEEDS, TREES & TURF. The practical, on-the-job advice and information it contains will help you to run your business efficiently and profitably in the months to come.

WEEDS TREES & TURF

HBJ A HARCOURT BRACE JOVANOVICH PUBLICATION

new houses and apartments this winter at the fastest pace since 1979. The National Golf Foundation reports nearly 350 golf courses are under construction. NGF reports 80 percent of these new courses are tied to real estate developments as compared to an overall average of 20 percent. Golf is being helped by the popularity of condominiums and recreation-minded communities.

Amidst the problems in agriculture, the landscape markets stand out as a reliable, healthy customer.

In residential construction alone, there will be approximately 1.75 million starts in 1983. That not only means opportunity for landscape construction, but enough new maintenance business to support creation of another 220 lawn care companies averaging $250,000 per year at a market penetration of 20 percent.

It's very important to note that the majority of both new housing and golf course starts are in the South, the state of Texas especially. Northeastern and North Central starts are lagging behind.

Sod producers especially hope for recovery in construction as soon as possible. New technology gives them the ability to increase supply more rapidly than in the past. With netting, aggressive new Kentucky bluegrasses, and improved nutrition programs, sod growers can produce sod in under six months instead of a year. Modern harvesting equipment also reduces labor and adds speed.

A recent *Weeds Trees & Turf* survey indicates sod producers realize they can offer the latest varieties of turfgrass sooner than seeding contractors do. They are also working hard on cost control to increase profit margins rather than selling sod of cheaper, disease-prone turfgrasses. The American Sod Producers Association has made customer education of the benefits of improved turfgrasses a priority.

Seed growers continue their progress with Kentucky bluegrasses, perennial ryegrasses, and fine-bladed tall fescues. They have made significant steps toward disease resistance, lower nutrition requirements, and most recently, insect resistance.

Turfgrass selection efforts by the seed companies and organizations such as the USGA Green Section have made development of turfgrass varieties a world-wide project.

Winter overseeding is a market which helped seed growers while construction held sales down. Overseeding has great potential for golf-courses and other turf areas on the South.

Overseeding mixes for sports fields should grow in sales as well. Cultural practices, including overseeding, will need to improve in the 80's to enable fields to withstand increasing use levels. The more seed used in maintenance the less dependent seed growers will be on construction.

The nursery market, like sod and seed, has felt the pinch of lagging construction, northern nurseries more than southern. Like sod, it is on the verge of technology to cut costs with tissue culture. Nurserymen with this production capability may have the advantage in the future. Production of regional cultivars by large regional nurseries may begin to erode the market share held by single-state growers with national shipping.

New technology enables sod growers to increase supplies more rapidly than in the past.

A predicted 4 percent inflation rate and Treasurer Bill and certificates of deposit down to 8 percent will encourage investment in industrial parks, shopping centers, and multi-family housing. Mortgage rates between 12 and 13 percent will spur single-family housing and condominium sales. Again, the majority of the construction is taking place in the South and West. Nevertheless, other areas will get their share.

Landscape installation work for single homes should recover in the fall. Commercial project landscaping probably won't recover until 1984.

The importance of landscape renovation should continue to grow. Renovation is important to many segments of the golf and landscape market and consequently should be a primary marketing concept. Appropriate information on the aging of plant material should be distributed. Residential landscaping is beginning to move away from the foundation into the yard. Overgrown material abounds in all types of landscapes. There are ways landscapers and nurserymen can take to increase plant sales for existing property. Maintenance contractors should take the lead in recommending landscape renovation.

Maintenance contractors should take the lead in recommending landscape renovation.

Renovation of golf courses to achieve maintenance efficiency, golfer challenge, and a more natural appearance is a vital part of the golf market. Water is one of the strongest reasons for golf course renovation. Reducing high maintenance areas to conserve water, labor costs, and chemical costs is justifiable. There is considerable disagreement on how to reduce high maintenance areas between golf course architects and superintendents, but gradually superintendents are getting away from wall-to-wall fairways.

The increasing demand for outdoor recreation and rising property values are giving renewed luster to the golf course. Housing around golf courses tends to attract buyers not as affected by economic problems as the general public. Without the golf course, the housing might not attract this type of buyer and the real estate developer would face greater risk. The value of the

course therefore increases as does the importance of the superintendent caring for it. The fact that 80 percent of new course development is tied to real estate developments is a healthy sign for the game of golf. Once established, these courses are more financially secure than other courses.

Two areas have been wrought with price cutting in the past year more than before, lawn care and distributors. Profit margins in these two segments of the landscape market are lowering their attractiveness.

Without the golf course, housing developments might not attract the type of buyer free from economic woes.

Lawn care firms have always faced competitive zeal in cutting out a market share. Ethics in pricing is a major reason for the creation of the Professional Lawn Care Association of America. But, with less new business this year, price cutting was more intense. Also, contractors entering lawn care to bolster cash flow lost from construction, created more pressure for customers. One large lawn care company tried neighborhood pricing, offering lawn care to each homeowner in one neighborhood at one low price to increase business while cutting down on travel time. In many cases, other lawn care companies holding those accounts just matched their price.

If lawn care companies don't differentiate their services from their competitors, they face continued price cutting. However, a recent *Lawn Care Industry* magazine survey indicated an 88 percent customer retention rate. Stealing customers from competitors has not been very successful.

There has been considerable price cutting by equipment and chemical distributors recently. One medium-size distributor told *Weeds Trees & Turf* prices are down to cost in some bids for government and industrial customers. The problem is more with chemicals than equipment. In the final analysis, the result is less profit, less service.

In the final analysis, the result is less profit, less service.

The market area considered by many to have new potential today is athletic fields and recreational areas. The demand for recreational facilities is clearly evident. What is not clear is how government agencies (schools and parks) will respond to the demand. The increase of special park districts operated by trained managers and supported by taxpayers is a good sign. Existing facilities are getting worn out. Who consults parks and schools on field repair measures is critical. Who maintains these fields and by what standards are also important. The potential is tremendous, but in the wrong hands it might never materialize.

To rely on construction alone to solve all our problems is a definite mistake.

Just to know construction is returning should be good enough news. To rely on construction alone to solve all our problems is a definite mistake.

The landscape markets need to continue their work toward cost control, renovation, differentiating service, new product efficiency, and customer education.

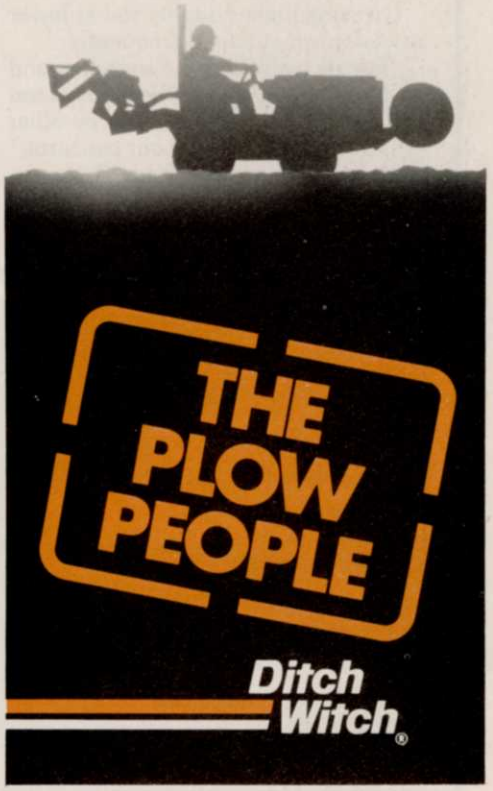
A critical part of productivity is good management. Investments in management training for supervisors pays off with better organization, fewer mistakes and greater productivity.

Marketing programs should be reviewed for effectiveness. Selling is a discipline equal in importance to technical ability. Ability needs to be communicated to potential customers. **WTT**

Maneuverability!

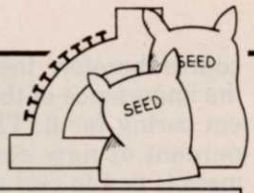
The 350SX.

- 4-Wheel-Drive and independent *front* and *rear* steering gives you control in all situations.
- Compact size allows the 350SX to go places other machines can't... even through a 36-inch yard gate.
- Clean exterior design keeps machine's components clear of tree limbs, shrubs and other obstructions.



Circle No. 106 on Reader Inquiry Card

LANDSCAPE MANAGEMENT



Average Seed Expenditures

Year	Amount
1980	$6,318
1981	5,577
1982	4,394
1983	Insufficient responses

BOUNCING BACK

Sod industry fights back with customer education and higher quality turfgrass

1983 will be the year the sod market recovers, according to the results of an informal WEEDS TREES & TURF survey.

All respondents were owners, presidents or in top supervisory positions within the company. On the average, they managed 276.5 acres of sod. Sod production is the primary business of over 80 percent who replied. Others raised cattle, were in nursery sales or land development and maintenance.

Half of the respondents have reduced their sod acreage in the past two years to crops such as wheat, soybeans, corn, tomatoes, mint, vegetables, trees and tobacco.

Challenges ahead

Four challenges surfaced as major concerns for sod producers.

Growing higher quality sod at lower prices was mentioned frequently.

"For us, selecting the varieties and species that will satisfy the cities so sod can be used instead of rock or other ground covers is one of our concerns," said one sod grower from Colorado. "This (alternate ground cover) is brought about by some water shortages in our area and from this, some cities like Aurora, CO, have enacted ordinances against bluegrass above certain quantities."

Keeping expenses under control was a concern for all, but depending on the size of the company, seems to be handled in different ways.

"I have a second job during the winter months," explained one sod producer. "My wife also works. That's O.K. for a small producer like me to get by, but a large sod operation would have to diversify into other crops in order to survive. The solution to the whole problem lies in the ability to lower interest rates and housing costs."

> "The profit margin is very low compared to five or more years ago."

Another respondent said, "The uncertainty of demand brings about low production and low prices. The profit margin is very narrow compared to five or more years ago."

Education, not only of sod producers in state-of-the-industry developments, but of the public in the short and long-range benefits of sod over seed, was one of the largest areas of concern.

As one sod producer put it, "We need to have consumers recognize the value of quality sod over seed."

Another sod producer thought indiscriminate buyers were a problem. "We have to educate buyers to the importance of quality sod. Indiscriminate buyers that go for the lowest price sod regardless of quality, often hurt the image of all sod producers because the sod they lay often turns out poorly (weed-infested) and is often of mixed varieties. Low-quality producers are kept in business and prices in general are held down."

The threat of over-production was another challenge. While some areas are depressed, in others the demand for sod is there, but the money isn't.

"At present, we could sell more sod than we could grow," said one respondent. "We plan to continue planting as soon as we can afford to do so."

Elusive answers

The answers to these and other challenges aren't simple. According to the survey, there is a definite need for more aggressive advertising and marketing; more communication among industry members; lower interest rates; emphasis on good business practices and quality products; and more research at the university level for finding more disease-resistant strains.

Employment numbers of both full

Importance of Buyers in the Sod Market*

	Important	Moderately Important	Not Important	No response
Landscape Contractors	46	5	1	5
Homeowners	30	16	7	4
Cemeteries	6	17	20	14
Golf Courses	5	28	20	4
Garden Centers	13	20	14	10
Schools/Parks	15	19	11	12
Other	2			

*based on 57 responses

Average Number of Employees

Year	Full-time	Part-time
1980	7.28	8.0
1981	7.54	8.0
1982	8.0	7.0
1983	6.08	6.0

and part-time employees have noticeably declined over the past four years. In 1980, the respondents employed 7.2 full-time employees on the average; in 1981, 7.5; in 1982, 8.0; and in 1983, 6.8. Part-time employees went from 8 in 1980, stayed the same in 1981, dropped to 7 in 1982 and dropped again this year to 6 on the average.

While the number of employees declined, few respondents have sold any of their sod acreage in the past two years and less than 30 percent have sold any equipment.

Some respondents maintain business is better than ever. Most, however, see 1983 as the year the sod business will pick up. Reduced interest rates were a prime factor listed in boosting sod sales.

Few respondents have sold any of their sod acreage in the past two years and less than 30 percent have sold any equipment.

In the chemical expenditure categories, 1982 was the year the most money was spent on fertilizers, herbicides, fungicides and insecticides. An average $2,160 was spent, based on 36 responses. Insecticides came out on top with an average of $2,240 being spent.

Equipment-buying has been held to a minimum over the past two years. Sixty-five percent of the respondents have postponed buying mowers, 46 percent have postponed buying sod harvesters, 40 percent forklifts, 44 percent trucks and 40 percent sprayers and spreaders.

Seed-buying has experienced a significant drop since 1980, although not enough responded to accurately judge seed sales for 1983.

In 1980, on the average, $6,318 was spent on seed. That dropped to $5,577 in 1981 and $4,394 in 1982. A little more than 50 percent of the respondents anticipated their seed purchases to increase in 1983, and again, a little more than half agreed the prices would pretty much stay the same. Fifty-four percent indicated they would be more inclined to try more expensive, improved seed varieties.

Landscape contractors are the most important category of buyers, followed by homeowners, schools and parks, garden centers, cemeteries and golf courses.

Challenges, solutions

Sod producers had other challenges facing them including lawn disease control, increasing productivity to keep prices down, oversupply in certain areas, government spending and sanctions, collecting on accounts receivable, selecting varieties and species of seed, finding workers, uncertainty of the market, slow down in building trade, not undercutting each other, being able to make a profit, cutting overhead and expenses, keeping ahead of hydraulic seeding, and, in general, being able to survive. Sod producers saw as solutions less acreage with higher quality seed varieties, sensible people elected to government posts, an improved economy, sod organizations to be better organized and to have those associations better police production, better water management, develop more disease-resistant seed varieties, have less government intervention in migrant labor problems and develop custom blends of sod that buyers can't get by using seed.

One individual, though, seemed to sum up a pervading feeling. The solution is simple enough—work like hell.

Productivity!

The 350SX.

- Vibrator speed can be varied to match soil conditions, giving you maximum fracturing force.
- Twin lift cylinders allow you to vary cover depth *during* plowing.
- Optional front-mounted hydraulic trenching accessory and a hydraulic boring unit are available so one machine can do more work.

THE PLOW PEOPLE

Ditch Witch®

Circle No. 107 on Reader Inquiry Card

LANDSCAPE MANAGEMENT

A NEW BREED

Oregon Turf Farms sees renovation market growing; users finding sod cheaper in the long run

By Maureen Hrehocik
Associate Editor

Sod is stacked *on pallets as harvester keeps cutting.*

"The concept of renewing a turf area is relatively new. Traditionally, people thought lawns would last a lifetime. That just isn't the case."

Will Lighty, manager of Oregon Turf Farms in Hubbard, OR, is building part of his company's future on that opinion.

"The people in the 25 to 30 age range are a whole different breed," Lighty continued. "They're looking at new options and a new approach to everything, including sodding instead of seeding. Some people who are buying homes and who may have seeded once, are turning to sod for their second home or when they decide to renovate their lawn."

Modern sod equipment *(Princeton harvester shown) increases speed and reduces handling.*

The concept of renovation is also helping Oregon Turf Farm sales.

"New home construction isn't the only source of buyers for us," said Lighty. "Renovation of old homes and property is a market we will continue to concentrate on. People are realizing the advantages of the adaptability and immediacy of sod.

Lighty has managed the 350-acre production area since the company's founding in 1976. Lighty holds a Master's Degree from Colorado State University in Ornamental Horticulture and Turf Management. Oregon Turf Farms is owned by Tom D'Armond.

On the average, Lighty spends $6,000 to $8,000 a year on seed and works with a staff of five.

"We use a ryegrass, bluegrass and fine fescue combination, but we're always looking for improved types," he said. "We're a very quality-conscious company."

Among his bluegrasses, he uses Shasta and Sydsport; Citation, Manhattan and Pennfine ryegrass; and Jamestown fine fescue. He is also "looking at hard fescues." Because of the lack of demand, he grows no bentgrass sod.

"Landscape contractors and retail garden centers are our main customers, however, we do get

Will Lighty, *right, in the field with Chuck DeJardin.*

homeowners buying directly from us," he said. "We have felt some side-effects of the recession, but there is still a demand for sod."

In fact, Lighty has seen the demand for sod steadily increase over the past five years. Contractors are rethinking the cost of sod in light of the scope of an entire project.

"Immediacy is important in the case of resorts, hotels, and restaurants," explained Lighty. "Seeding requires six to eight months of maturing to achieve the same net result that sod gives as soon as its laid. Appearances are very important on jobs like these because appearances attract people to businesses."

Lighty also pointed to the fact that some maintenance contracts require as much as up to a year for seeded jobs, while for sod, it's usually a 60-day contract.

"This is especially important if a job is located far away from the home-base of the company," he said. "In this case, sod may be initially more, but it pays in the long run."

While the company hasn't reduced the amount of care it gives to its turf, it has reduced irrigation costs by getting the fields in good condition and irrigating less.

Lighty uses a commercial nitrogen fertilizer, sometimes straight, other times blended with phosphate, potash and sulphur.

"We still use netting, but the material is more mature at harvest time," he said.

The company's greatest marketing tool is word of mouth. It tries to live up to its slogan, "We're easy to get a lawn with."

"The quality and reputation of our product is the key to our sales," Lighty said. "Success of our product is always a concern. We try to help our customers utilize the product in a way that will be successful."

The adaptability of Oregon Turf Farm's sod was proven in a shopping mall where sod was laid on asphalt and is doing beautifully.

"The future of the industry looks excellent," Lighty says. "Sod is a useful tool in the builder/developer's bag of useful tools. All people who are serious in using property as a money-maker, must seriously consider sod.

"It's really a matter of being an educational process," Lighty continued, "showing people options they may not have been aware of."

Stability! The 350SX.

- Rigid frame, 4-wheel-steer and oscillating front axle provide stability on uneven terrain and on side-hills.
- A hydraulic swing cylinder keeps the vibrator and blade from swinging to the low side when coming out of the ground, preventing sudden shifts in weight.
- Standard high-flotation tires grip the ground and minimize turf damage.

THE PLOW PEOPLE

Ditch Witch®

Circle No. 108 on Reader Inquiry Card

LANDSCAPE MANAGEMENT

KEY IS EFFICIENCY

Long Island sod producer uses pragmatism to adjust to current market trends

By Ann Reilly

Efficiency of *McGovern's equipment is a principle concern.*

You know it's spring on Long Island when the boom trucks carrying pallets of sod roll down the Long Island Expressway.

Chances are strong that McGovern Sod will be lettered onto many of those trucks, and that they will be headed to Shea Stadium, West Point, or a cemetery, park, landscape contractor or retail garden center somewhere in metropolitan New York City, New Jersey, Connecticut or Long Island.

McGovern has been selling sod since the turn of the century when James McGovern cut old pastures and golf courses for sale to the residents in Brooklyn. McGovern's first farm of 15 acres was purchased in 1936 and the operation has increased over the years to its present 600 acres in three locations (Melville, Calverton and Mt. Sinai) on Long Island.

Like many sod farmers, the McGoverns bought and sold land, moving outward to new locations as the population multiplied, and constantly tried to upgrade the operation. Expansion became possible through successful real estate transactions and the production of the highest possible quality sod due to Long Island's ideal soil structure and water percolation and good climatic conditions. Today McGovern Sod Farms owns 60% of its land and leases the remaining 40%. Cousins and partners Richard T. and Edward C. McGovern operate McGovern Sod Farms today, a far cry from the business started by their grandfather over eight decades ago.

Dick McGovern considers the efficiency of his operation to be primary. His grandfather no doubt ever envisioned today's mechanization, irrigation equipment, regular programs of fungicide, insecticide and herbicide controls available, radio controlled operations between the field, the office and the trucks, and deliveries within 24 hours.

The trend in the sod growing industry in recent years has been to increase efficiency since it is an industry with high capital investments in mechanization. Since the early 70's, the development of modern harvesting equipment has lowered manual requirements from 15 men to five men to do the same job and has eliminated hand stacking. McGovern's crews harvest an average of 5,000 sq. ft. per hour per machine allowing for down time; the harvesting equipment can actually cut and stack 6- to 7-thousand sq. ft. an

Dick McGovern, *left, and dispatcher Tom Hunt.*

Ann Reilly is Executive Director of the New York State Turfgrass Association and the Mailorder Association of Nurserymen. She lives on Long Island.

3 good reasons for buying Ditch Witch vibratory plow equipment.

Selection.

It stands to reason that the people who pioneered and developed vibratory plowing should lead the way in vibratory plowing. From 25-to-100-HP-class machines, you'll find Ditch Witch offers the most complete selection of vibratory plows in the industry.

With Ditch Witch plows, you can install telephone and power cable, water and natural gas lines, television cable, irrigation systems and more. All without digging trench, without backfilling.

Service.

A measure of a machine's value is its dependability. And a key to dependability is service.

With Ditch Witch equipment, you get service that will keep your plow running right. And on the job. We have more specialist dealer locations than anyone else in the industry; dealers with a complete parts inventory. Staffed with trained mechanics who specialize in Ditch Witch equipment.

Experience.

We pride ourselves on being underground construction specialists. That's why at Ditch Witch dealer locations, you'll find people with a knowledge of area soil conditions. And they know the plowing techniques that are best suited for *your* area.

Ditch Witch dealers help you match the best plow and plow blade for your job to make sure you get the best production possible.

Selection, service and experience: you get more of each with Ditch Witch vibratory plows. So call us The Plow People. Better yet, call us *your* Plow People.

Write today for information. The Charles Machine Works, Inc., P. O. Box 66, Perry, Oklahoma 73077. 405/336-4402.

Ditch Witch. Don't settle for less!

THE PLOW PEOPLE

Ditch Witch®

Circle No. 109 on Reader Inquiry Card

New Toro® Super 600C . . . we didn't make it bigger, we just made it better!

The non-identical twins; can you tell the difference?

They *look* identical, except for the small set screw on Toro's new Super 600C sprinkler head. That's for the locking cap feature, assuring even greater vandal-resistance. The check valve in the new model is *inside* so you can't see it at all, but it puts a stop to low-head drainage. And the big difference (which you can see only in performance) is the new nozzle selection that lets you apply about twice the gallonage. Just the thing for demanding large-turf applications. Of course, *both* heads offer adjustable radius . . . adjustable arc . . . and locking nozzle. For super results, specify and install Toro Super 600 . . . or, for the bigger job, just add the "C."

SUPER 600C
$23.95 *

SUPER 600
$20.95 *

The Toro Company, Irrigation Division
Dept. WT-783, P.O. Box 489, Riverside, CA 92502

**Manufacturer's suggested list price, subject to dealer option*

TORO®

EXCELLENCE IN IRRIGATION

Circle No. 131 on Reader Inquiry Card

hour at peak efficiency. This figure converts to a trailerload an hour for every two harvesters.

The industry has itself to thank for its innovations, for it is the sod growers themselves that have invented and manufactured their new equipment. The 13-gang mowers that cut McGovern's fields are the largest available in the industry and used almost exclusively by sod growers. Big rolls, 48-inches wide and 50-feet long, have been developed for large scale sod laying operations.

Although improvements in technology have definitely increased the efficiency of the sod growing operation, McGovern doesn't foresee it reaching the point of computerization. "It's an eyeball business," he explains. Sod fields are visually studied every day, and something additional is usually found that needs to be done. Studies were done to set up irrigation parameters, for example, but it was found that there were too many soil differences, too much variance in temperature to make it work.

McGovern's crews harvest an average of 5,000 square feet per hour per machine, allowing for down time.

McGovern's sod fields are generally fertilized three times a year, with the type of fertilizer varying with the age of the turf. A 1-2-1 ratio, 50% organic fertilizer is used at seeding time and on young turf, with a switch to a 16-8-8 for mature stands. If visual inspection reveals that a fourth application is necessary, it is done.

Turf is mowed on a regular schedule but this again can vary with rainfall and heat. Cutting height is set at 1¼ inches in spring and raised to 1⅝ inches about the first of June. If it becomes very hot in summer, height can be increased to as much as two inches, but McGovern explains that this is not necessarily desireable since long grass invites fungus diseases. While mature sod is cut every three to four days, sod ready to be harvested is cut every day or two, again based on physical inspection. If it's too long, it doesn't stack properly.

New turfgrass varieties and hybrids have also been a boon to the sod grower, since they contribute attributes such as disease resistance, faster establishment rate, seedling, vigor, darker color or earlier greening-up. Varieties grown at McGovern are primarily bluegrass and include Adelphi, A-34, Touchdown, Eclipse and Ram I, with the tendency being away from non-bluegrass shade mixtures in very recent years.

Like many other segments of the Green Industry, the sod farming operations on a national level, especially the smaller farms, have been hurt by recent economic times and the decline in new construction. This downward trend has, however, started to turn around already, and McGovern expects it to be back on level course by late this year to next spring. With 70% of the members of the American Sod Producers Association farming on 200 acres or less, one would not be surprised that the industry felt the effects hard and saw some diversification to

Forecast Easing Spring Chores

★EXTRA★

Forecast Peace of Mind Fertilizing

Milorganite . . . America's Foremost Naturally Organic Fertilizer

Milorganite® solid thinking when thinking of solids

MILORGANITE is a Proven, Natural Organic Turf Food that will fit into your Lawn Service Program.

- Slow nitrogen release is based on activity by soil microorganisms. They work at the same temperatures and moisture levels which encourage grass growth — no more, no less.
- There are no soluble salts in Milorganite so it cannot burn the turf. "Watering in" is not necessary.
- Early winter applications stay in place, waiting for soil warmup in spring. This frees you for other early spring operations. The Milorganite will be ready to go when the grass is ready to grow.

- Spreader calibration is easy, because Milorganite is bulky. Just set any spreader wide open to apply 1 to 1½ lbs. of actual nitrogen per 1,000 sq. ft. depending on walking speed.
- Over 60 distributors assure nationwide availability.

AND BEST OF ALL Milorganite promotes excellent turfgrass color and density wherever you may be. This has been proven in service to the turf industry since 1926.

Milorganite®

MILWAUKEE METROPOLITAN SEWERAGE DISTRICT
735 N. Water Street
Milwaukee, WI 53202

Circle No. 126 on Reader Inquiry Card

other crops in some areas. That, too, is changing back at present. Long Island's sod business remained in healthier shape than the rest of the country's during the recession, primarily because of its microcosm of better economic conditions.

Even the healthy Long Island industry has seen some decline, however. The number of sod growers has decreased dramatically in the last dozen years from eleven to four, but the acreage has remained approximately the same or down only slightly to its current 2500 acres.

Dick McGovern's philosophy in keeping his operation strong is one of realism, pragmatism and adjustment to the market. He takes advantage of new innovations to the ultimate, keeping his eyes open and asking questions at meetings and of salesmen. The most important thing to him is to make a profit first, balancing the economics and technical aspects of producing a quality product. He has a belief in the future which he feels he couldn't operate without.

McGovern got his sod growing experience on the job, and he feels it came hard to him without a technical background. His degree is in economics from Fordham University. Working "hands on" in the business and visiting other growers brought the necessary experience. If he were to start over again today, McGovern feels a university degree in agronomy would be a necessity.

In the last several years, McGovern has taken his "hands on" experience in sod production and sales and shared it with others by becoming highly involved in the turfgrass industry. He is a member of the Board of Directors and Conference Chairman for the New York State Turfgrass Association, member of the Research Committee of the American Sod Producers Association, member of the Nassau County Turf Advisory Committee and Chairman of the Suffolk County Agricultural Advisory Board. McGovern sees the role of associations as being a forum for disseminating information, bringing technical and legal problems to the forefront and dealing with them in a concerted effort, funding research and unifying divergent interests.

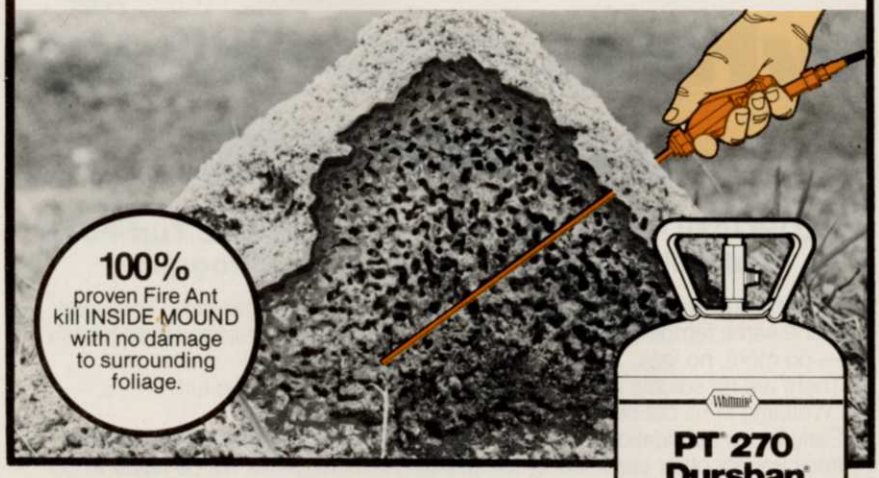
In hours "off duty" from McGovern Sod Farms and industry-related activities, Dick McGovern enjoys the many faceted life of his wife, three children, tennis, golf, weightlifting, traveling, wood-working, collecting fine wines and investing in real estate and the stock market.

Robert Russell of J. and L. Adikes, a close friend and fellow member of the turfgrass industry, sums up what makes McGovern the successful man he is. He says, "Dick McGovern is a product of the old school. He knows how to work when the need is there. As a youngster, before the age of mechanization, he learned the hard way from tough masters, his father and his uncle. He learned what it was like to get up at 4 a.m. be at the field at daybreak, and cut, pile and load by hand trailer after trailer of 12-inch squares.

"He has been meticulous about changing with the times and keeping abreast of new technology and knowledge concerning the requirements of today, needed to produce a first class, merchandisable piece of sod. Dick makes a point of knowing what is going on in his industry."

For your fire ant problem...

Whitmire PT® 270 Dursban* and New 12" Soil Injector



Here's how it works.

Dursban and solvents are forced deep into ant galleries with high pressure CO_2 propellant killing all ants by three methods.

1. CONTACT KILL The instant the spray contacts ants, they are stopped dead in their tracks by the vaporized PT 270 Dursban.

2. FUMIGATION KILL Toxic vapors of Dursban, CO_2 and evaporated solvents replace air in the mound anesthetizing and suffocating ants.

3. RESIDUAL KILL Returning ant foragers and any emerging stages will be killed by the long-lasting residual.

Designed for use in golf courses, parks, utilities, nurseries, and other outside locations.

Treat a fire ant mound effectively in less than 60 seconds.

Call the Distributor in your area...

B & G COMPANY
Dallas, TX • Tel. 214-357-5741

ESTES CHEMICAL CO.
Wichita Falls, TX • Tel. 817-766-0163
Offices in: Oklahoma City, OK, Paris, TX, Waco, TX

FORSHAW CHEMICALS
Charlotte, NC • Tel. 704-372-6790

OLDHAM CHEMICAL CO.
Memphis, TN • Tel. 901-794-0084
Offices in: Birmingham, AL

SAVVY CHEMICAL CO.
Metairie, LA • Tel. 504-835-5926

SOUTHERN MILL CREEK PRODUCTS CO.
Tampa, FL • Tel. 813-626-2111
Offices in: Jacksonville, FL, Miami, FL, Atlanta, GA, New Orleans, LA

STEPHENSON CHEMICAL CO
College Park, GA • Tel. 404-762-0194

THOMPSON-HAYWARD CHEMICALS
Atlanta, GA • Tel. 404-351-0654
Offices in: Tulsa, OK, Houston, TX

VAN WATERS & ROGERS
Houston, TX • Tel. 713-683-8371
Offices in: Dallas, TX, San Antonio, TX

WOODBURY CHEMICAL COMPANY
Princeton, FL • Tel. 305-247-0524

*DURSBAN Reg. Trademark Dow Chemical Corp.

Circle No. 138 on Reader Inquiry Card

Workmen's Comp

Workmen's compensation provides funds to cover work accidents without lengthy litigation about fault.

By Richard I. Lehr, attorney

One of the most confusing areas of the law for employers and employees is workmen's compensation. This is primarily due to the fact that many workmen's compensation statutes are not easy to comprehend.

Furthermore, in a typical injury-related matter, such as an automobile accident, the fault or negligence of the parties is an essential issue. In workmen's compensation claims, however, the relative fault of employer and employee is rarely an issue.

The purpose

Workmen's compensation statutes were drafted to give employees greater protection in the case of an injury or death resulting during the course of employment. The reason why fault is not an issue is because state legislators preferred structuring a system that was less litigious than typical personal injury situations, unless an employee is guilty of willful misconduct. Thus, employees could receive compensation promptly, rather than waiting until all trials and appeals in the judicial system are exhausted. The cost for this protection, according to the legislative intent, would ultimately be borne by the consumer, shifted to the consumer by employers who elected to be covered under the workmen's compensation statutes.

Workmen's compensation does not displace an employer's duty to comply with the Occupational Safety and Health Act. Nor is workmen's compensation a form of income compensation, such as unemployment compensation or disability insurance. Rather, workmen's compensation is simply a statutory value of a particular injury.

Statutory coverage.

Each statute from state to state varies regarding the minimum number of employees an employer must have in order to elect workmen's compensation coverage. Many require a minimum of 10 employees, others require only three employees. An employer who is not covered by the workmen's compensation statute then may face typical common law litigation arising out of an employment-related accident. Therefore, those employers who are either ineligible or elect not to be covered by the workmen's compensation statute had better secure a comprehensive insurance policy in the event an employee is injured in a job-related accident.

A frequent issue in workmen's compensation matters is whether or not a particular injury is compensable. Generally, workmen's compensation statutes are given liberal construction, to cover an injury "by accident arising out of and in the course of employment." Thus, unforeseen, unexpected or sudden accidents resulting in injuries are generally covered. Accidents arising when an individual is performing incidental duties are also covered. Matters

continued on page 50

Richard Lehr is a labor lawyer for the Birmingham, AL, firm of Sirote, Permutt, Friend, Friedman, Held, & Apolinsky, P.A.

BOOKSTORE

335-LANDSCAPE DESIGN THAT SAVES ENERGY by Anne Simon Moffat and Marc Schiler
Practical guide to landscaping a home or office to reduce space heating needs by as much as 30 percent annually. Contains specific planning strategies for the four main climatic zones of the continental United States. **$9.95**

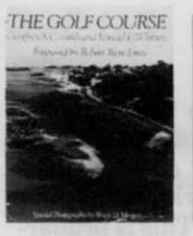
360-RESIDENTIAL LANDSCAPING I by Theodore D. Walker
Provides an in-depth discussion of the planning, design and construction phases of residential landscaping. Illustrated with the work of professional landscape architects. Covers everything from analyzing the site to constructing the landscape. **$22.50**

395-LANDSCAPE ARCHITECTURE by John Ormsbee Simonds
A Manual of Site Planning and Design. This long-awaited second edition outlines and analyzes the complete landscape process from site selection to finished project. In simple and clear terms it describes various planning constraints imposed by the forms, forces and features of the natural and built landscape. **$34.95**

790-RECREATION PLANNING AND DESIGN by Seymour M. Gold
A comprehensive look at recreation needs for parks and how they can design the park facility for the community. Book's content can help justify construction and maintenance needs. **$39.50**

800-THE GOLF COURSE by Geoffrey S. Cornish and Ronald E. Whitten
The first book ever to give the art of golf course design its due, and golf course architects the credit and recognition they deserve. 320 pages and approximately 150 color and black and white photographs. Traces the history and evolution of the golf course, analyzes the great courses, shows how they were designed and constructed. **$35.00**

615-TURF MANAGEMENT FOR GOLF COURSES by James B. Beard
Written by an eminent turfgrass researcher, this USGA sponsored text is an ideal reference and "how to" guide. Details all phases of golf course operations including course design and construction, turf management, course administration, irrigation, equipment and disease and pest control. Fully Illustrated. **$45.00**



010, 015-ADVANCES IN TURFGRASS PATHOLOGY by Dr. B.G. Joyner & Dr. P. Larsen
Leading U.S. turf pathologists report on turfgrass diseases, pythium blight, snow molds, fairy rings, leaf spot of Kentucky Bluegrass in Minnesota, initial and filed fungicide screening, turfgrass disease resistance, etc. Contains new ideas on how to combat turfgrass problems. **$27.95 hardcover, $18.95 paperback**

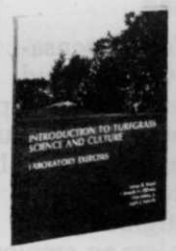
625-ADVANCES IN TURFGRASS ENTOMOLOGY edited by H.D. Niemczyk and B.G. Joyner
A complete account of the facts presented at the 1980 Symposium on Turfgrass Insects. 200 photographs, tables and graphs make this volume an indispensable reference for anyone connected with the turfgrass industry or research. **$24.95**

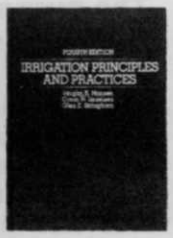
110,120-TURF MANAGERS' HANDBOOK by Drs. William Daniel and Ray Freeborg
This specially designed manual by leading turf specialists is a comprehensive, organized approach to turfgrass science and care. An easy, on-the-job reference for planning, purchasing, hiring, construction and plant selection. **$23.95 hardcover, $18.95 paperback**

645-MANAGEMENT OF TURFGRASS DISEASES by J.M. Vargas
Identifies turfgrass diseases by description and illustration. Includes a holistic approach to healthy turf and lawns. Presents practical management strategies for golf courses, lawns and athletic fields. 204 pages, Illustrated. **$24.95**

655-TURFGRASS: SCIENCE AND CULTURE LABORATORY MANUAL by Beard, DiPaola, Johns and Karnok
Class tested for over three years, this manual provides fourteen exercises which can be easily adapted to your particular course structure. Exercises involve students in vegetative and seed identification, equipment and irrigation system selection and operation, problem solving of typical math problems involved in turfgrass operations and the diagnosis of problems with emphasis on weeds, diseases and insects. Encompasses both warm and cool season turfgrass. **$10.95**

635-IRRIGATION PRINCIPLES AND PRACTICES by Hansen, Israelsen and Stringham
A new fourth edition of this highly successful textbook presents essential concepts pertaining to water conveyance, application, storage in the soil and use by the plants. Basic underlying principles that govern irrigation practices are stressed. Generalized concepts are discussed and newly formulated practices are examined. **$34.50**



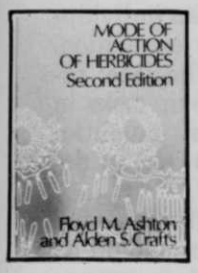


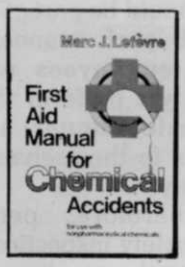
565-WEEDS by Walter C. Muenscher
Second edition. Premier text for identification and basic natural history for weeds found in the continental United States and Canada. Ecological data on weed biology combined with excellent keys and plant descriptions makes this an essential reference book. **$34.50**

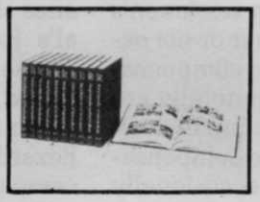
455-THE GRAFTER'S HANDBOOK by R.J. Garner
Revised and updated fourth edition. The encyclopedia of plant propagation by grafting. Contains information on the chemical control of weeds in orchards, on diseases and on the vegetative propagation of woody plants. **$19.95**

405-WOODY ORNAMENTALS by Partyka, Joyner, Rimelspach, Carver
Illustrates plant identification characteristics. Organized in two basic sections: plant identification and plant disorders, this text utilizes 430 color photos, 430 line drawings and 45 black and white photos to simplify identification. Goes into detail on plant identification and description as well as plant problems such as diseases, chemicals, insects, animals and physiological disorders. **$27.00**

BOOKSTORE







575-MODE OF ACTION OF HERBICIDES by Floyd M. Ashton and Alden S. Crafts
Provides worldwide body of information on each class of herbicide. Cross-indexed tables of common and trade names of herbicides are included. New herbicides accepted since 1972 are listed in this revised second edition. Excellent practical reference for specialists in field of weed science. **$47.95**

795-FIRST AID MANUAL FOR CHEMICAL ACCIDENTS by Marc J. LeFevre
This indispensable guide helps you take quick corrective action to minimize the harmful effects of chemical accidents. Written for people (other than doctors) called on to aid fellow workers who are victims of such work-related accidents. A must reference for any work situation involving hazardous chemicals. **$21.50**

555-THE NEW YORK BOTANICAL GARDEN ILLUSTRATED ENCYCLOPEDIA OF HORTICULTURE by Thomas H. Everett
10 volumes compiled in an easy-to-use encyclopedic format with Latin/popular name cross-referencing. 20,000 species, 3600 genera, 2500 cross-references, 10,000 photographs. Slated to be the standard reference source in the field of horticulture. **$550.00**

ADDITIONAL TITLES

340 - CONSTRUCTION DESIGN FOR LANDSCAPE ARCHITECTS $39.50
345 - COST DATA FOR LANDSCAPE CONSTRUCTION 1983 $27.50
410 - DISEASES & PESTS OF ORNAMENTAL PLANTS $29.95
660 - DISEASES OF SHADE TREES $23.50
610 - DISEASES OF TURFGRASSES $30.00
350 - HANDBOOK OF LANDSCAPE ARCHITECTURAL CONSTRUCTION $48.50
510 - HORTUS THIRD $125.00
690 - INSECTS THAT FEED ON TREES & SHRUBS $47.50
370 - LANDSCAPE OPERATIONS: MANAGEMENT, METHODS & MATERIALS $20.95
545 - MODERN WEED CONTROL $21.50
700 - THE PRUNING MANUAL $14.95
720 - SHRUB IDENTIFICATION $8.00
750 - TREE IDENTIFICATION $9.95
760 - TREE MAINTENANCE $35.00
650 - TURFGRASS MANAGEMENT $19.95
630 - TURFGRASS: SCIENCE & CULTURE $27.95
640 - TURF IRRIGATION MANUAL $22.95
620 - TURF MANAGEMENT HANDBOOK $14.65
570 - WESTCOTT'S PLANT DISEASE HANDBOOK $36.50

CLOSEOUTS

ORDER THESE TITLES AT SPECIAL REDUCED PRICES!

450 - GARDENING IN SMALL PLACES $6.75
460 - GREENHOUSE ENVIRONMENT $21.20
480 - GREENHOUSE MANAGEMENT FOR FLOWER & PLANT PRODUCTION $13.00
560 - WEED SCIENCE $21.00

Mail this coupon to: Book Sales
Harcourt Brace Jovanovich Publications
One East First Street, Duluth, MN 55802

Name _____
Street Address _____
P.O. Box Number _____
City/State/Zip _____
Signature _____ Date _____
Phone Number _____

Please send me the following books. I have enclosed payment* for the total amount.
Please charge to my Visa, Master Card or American Express (circle one)
Account Number _____ Expiration Date _____

BOOK NUMBER AND TITLE	QUANTITY	PRICE	TOTAL PRICE

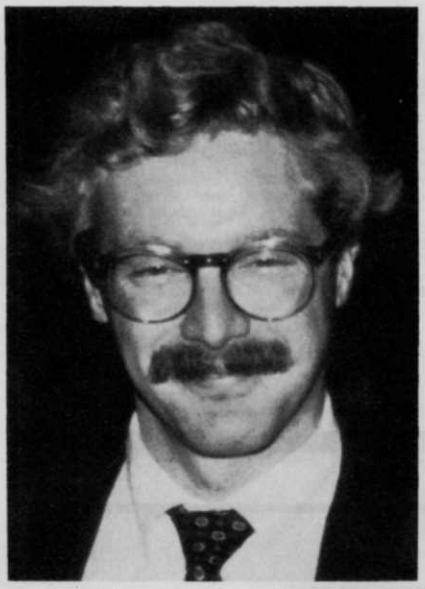
*Please add $3.00 per order plus $1.00 per additional copy for postage and handling.

_____ (postage & handling)

Please allow 6-8 weeks for delivery
Prices subject to change.
Quantity rates available on request

Total Enclosed _____

WTT 73



Richard I. Lehr, attorney

arising out of natural causes, such as degenerative eyesight or other medical conditions caused by the aging process, would not be covered.

A developing area in workmen's compensation is whether or not occupational diseases are compensable. Though diseases generally are not compensable, occupational-related diseases may be compensable. If an employee is occasionally or remotely exposed to substances that may cause an occupational disease, it is unlikely that such exposure would be significant to justify the conclusion that the exposure contributed to the disease.

Pre-existing conditions.

Employers are frequently concerned that an employee with a pre-existing medical condition may join the work force and subsequently become injured, thereby qualifying for workmen's compensation. A pre-existing medical condition, though perhaps disqualifying a new employee from benefiting from the company's medical insurance for that matter, would probably be eligible for workmen's compensation if the pre-existing condition is aggravated at work. Employers who hire an individual with a pre-existing medical problem that may be aggravated at work runs serious legal and economic risks. Employers have the right to inquire about a prospective employee's medical condition at the time of employment, and we strongly advise employers to do so in the following manner:

1. First determine that an individual is qualified for the job.
2. Investigate the individual's medical history. Inquire about prior job-related injuries and illnesses and verify the accuracy of the information conveyed to the employer by the individual.
3. The employer may require the employee to submit to a pre-employment physical examination.

Preventing workmen's compensation disputes.

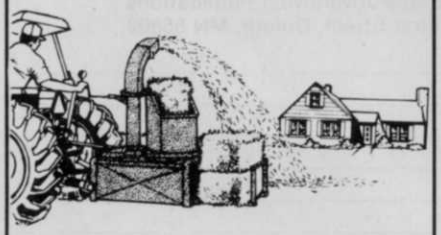
There are a number of things that employers and employees can do to limit potential workmen's compensation problems. Employers should implement a safety and accident prevention program. Safety consciousness and compliance should be part of an individual's job performance evaluation. Those employees who are retained, yet perform their tasks in an unsafe manner, are potential hazards to themselves and to the company.

Furthermore, periodic spot check safety inspections should be made by the employer's insurance carrier. Alternatively, many state universities have "Safe State" programs where members of the university perform a similar inspection, free of charge, and recommend to the employer what needs to be done to improve safety at the work place. This, in turn, may become an effective shield should subsequent safety disputes or litigation arise.

Finally, employees should be told that if they believe they have been injured on the job, they should cease working and report to their supervisor immediately. Unless an emergency, the employer should immediately investigate and document the accident, because the employer's liability and employee's eligibility for disability insurance or workmen's compensation is contingent on the nature and facts of the accident. Then, the employer should send the employee to a company doctor to determine immediately the severity of the injury and approaches that need to be taken. In most states where workmen's compensation claims are contested through administrative procedures, this initial examination may be admissible and contribute to determining whether or not the employee receives workmen's compensation benefits.

If an employee has missed work due to a disability or workmen's compensation injury, many states permit an employer to condition re-employment on successfully passing a medical examination, if the medical problem is job-related. Employers need to check the laws of the states in which they do business to determine whether the employer is required to disclose to the employee the materials accumulated during the medical investigation. **WTT**

The Goossen
TRACTOR DRIVEN
BALE CHOPPER
[PROVEN IN DAIRY FARM USE]



NOW proven successful in **Lawn Service** and **Nursery** operations.

LAWN SERVICE USES:
- Mulching newly seeded lawns
  - retains moisture
  - prevents washing
  - lessens wind damage

NURSERY USES:
- Mulching shrubbery
- Mulching bedding plants such as strawberry and raspberry

Call Toll Free OUTSIDE NEBR. **800-228-6542**

GOOSSEN INDUSTRIES
P.O. Box 705 • Beatrice, NE 68310

Circle No. 115 on Reader Inquiry Card

Rebel

Turf Type Tall Fescue

Performs in the Shade

Rebel turf-type tall fescue . . . up to 30% finer and 188% denser than Kentucky 31. Now university testing is showing Rebel tall fescue performs exceptionally well in shaded conditions.

This is what two of the leading turf specialists are saying about the shade performance of tall fescues:

Dr. Beard, world-famous turf agronomist at Texas A&M University: "After five years of testing the performance of tall fescue at College Station, Texas, results show that more consideration should be given to its use in shaded areas - particularly in the South where bermudagrass does not persist in the shade."

Dr. Funk, world-renowned turf breeder at Rutgers University: "In four years of testing at North Brunswick, NJ, Rebel has shown promise of significantly improved shade performance."

If you want a finer, denser tall fescue that will perform well in the sun or shade . . . try Rebel.

Lofts Seed Inc.
Bound Brook, NJ 08805 (201) 356-8700

Lofts/Maryland
Beltsville, MD 20705
(301) 937-9292

Lofts/New York
Cambridge, NY 12816
(518) 677-8808

Lofts/New England
Arlington, MA 02174
(617) 648-7550

Sunbelt Seeds, Inc.
Tucker, GA 30084
(404) 491-1311

Great Western Seed Co., Inc.
Albany, OR 97321
(503) 926-5892

Circle No. 123 on Reader Inquiry Card

A vote for the little course

Just a note to say how much I enjoyed Bill Lyons' article on Let'S Not Forget The Little Golf COURSES. It was just great and so very true.

Having just returned from Florida and other Southern areas, I have decided it is my last. The attempt to play golf down there is just too much trouble and aggravation, simply because the name of the game is $$$$$$$$$$$$.

I'll take our little golf courses here in our own area from now on.

I will also make a prediction. We will see the day when the classy clubs welcome the public to a great degree and golf will be FREE as long as you are willing to pay $50.00 per round for a cart.

Anyway, thanks for an excellent magazine. I really look for it each month and it is very helpful in our attempt to keep our "little" course in superb condition for our citizens.

Jerry Allen
Elizabeth City Parks and Recreation District,
Elizabeth City, NJ

Weather-matic

This is the famous Weather-matic valve for automatic lawn and turf irrigation systems. Our brass and glass-filled nylon models are engineered and crafted to be the standard by which other valves are judged. It's the standard of comparison because it *works*, long and hard. We know it will before it leaves our factory, for *each* one (not a "representative sample") is pressure tested to be sure.

It teams up perfectly with Weather-matic sprinkler heads, controllers and the Rain-Stat® to make the system that can't be beat.

The integrated Weather-matic system is your trustworthy investment in landscape maintenance. Write for the name of the Weather-matic distributer in your area.

You can't beat the Weather-matic system, because it *works*.

Weather matic.
LAWN AND TURF IRRIGATION

Weather-matic • Box 18205 • Dallas, Texas 75218

Circle No. 137 on Reader Inquiry Card

Organization is needed

I applaud your proposal to form an organization of educators and extension agents in horticulture and agronomy for turf and landscape. I agree that such an organization would be helpful to us and the industry.

A major part of my educational effort is with landscape managers, grounds maintenance people and turf care professionals. We have for the past eight years conducted a two-day school here in Evansville for these professionals as well as other meetings during the year. Over 100 participated.

Please let me know what I can do to help the organization become a reality.

Thank you for an excellent magazine.

Allen Boger
Extension Agent
Horticulture
Purdue University
Evansville, IN

Dual role for WT&T

I am writing this letter in response to your editorial in the March issue of *Weeds, Trees, and Turf*.

I am the Extension Plant Pathologist in charge of disease recommendations for forest, shade trees, and turf throughout the state of Georgia. I work very closely with our forestry industry, muncipalities (in managing their urban forests), and the turf grass industry within the state which includes golf courses as well as other high maintenance urban turf. Not only is *Weeds, Trees, and Turf* very helpful to me in distributing information, but it is also a possible outlet for me to disseminate information in the future.

I will be glad to work with you in any way possible. If I can be of any assistance to you in this area, please feel free to contact me.

Edward A. Brown
Extension Plant Pathologist
University of Georgia,
College of Agriculture,
Athens, GA

Nothing costs less than Subdue. Because so little goes so far.

Subdue gives turf the best protection against Pythium blight and damping-off for the least cost.

Nothing costs less to use than Subdue® to control Pythium blight and damping-off. Because it only takes 1½ fluid ounces of Subdue to cover 1,000 square feet for 10 to 21 days, on established turf.

And nothing works as well because Subdue has two-way action against Pythium blight and damping-off. First, Subdue works systemically, to protect your turf from the inside out. Second, Subdue works on contact to control Pythium in the soil.

Subdue will give you control in both established turf and newly-seeded turf. And Subdue's systemic action gives you longer-lasting control than other fungicides. So you not only save on Subdue's low rate, you also save on maintenance and labor costs.

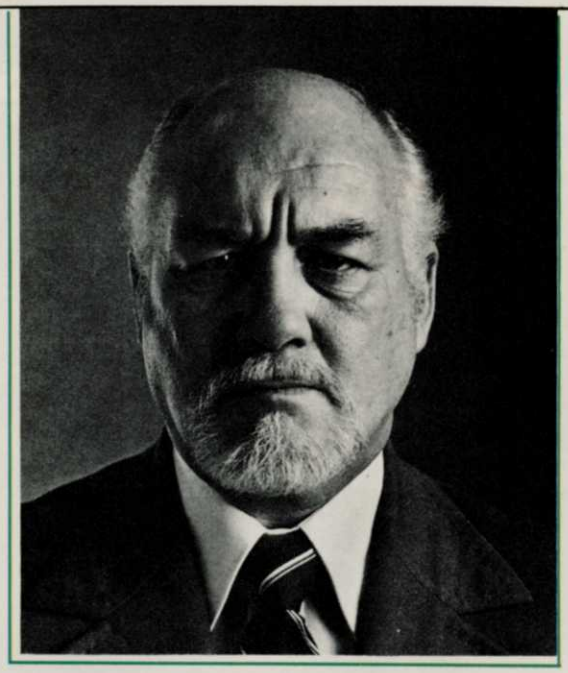
That's why Subdue is the best protection you can get. Because so little goes so far.

Ciba-Geigy, Ag. Div., Box 18300, Greensboro, NC 27419

CIBA–GEIGY

© 1982 Ciba-Geigy Corporation

Circle No. 219 on Reader Inquiry Card



How to Please the Chairman

And all the rest of the Board at the Country Club. Select Fylking Kentucky bluegrass for fairway seeding, overseeding, sodding. Beautiful, low growing, requires less mowing and nutrients. And — it's an elite bluegrass that costs less.

FYLKING
KENTUCKY BLUEGRASS
U. S. Plant Patent 2887

Another fine, quality-controlled product of Jacklin Seed Company.

Circle No. 118 on Reader Inquiry Card

Another frost crack solution

Your answer in the December 1982 issue of Weeds, Trees and Turf's (Vegetation Management column) on the ways to prevent frost cracks in London Plane reminded me of how I stopped frost crack in a 30 inch pin oak in my backyard.

When I moved into my present home in December 1959, the large pin oak in the backyard had a frost crack on the south side of the trunk extending up about 8 feet above the ground. It had been cracking for several years and a ridge of callus tissue had formed, but each year the crack opened anew. I noticed, also, that during the summer that fluxing took place out through the crack.

As a graduate student at Cornell in 1948, 1949 and 1950, I had seen Carl Seliskar's research on wetwood disease of elms and observed that properly installed drain pipes stopped the fluxing. So I drilled a hole a little over half way through the trunk about 8 inches above the ground and put in a drain pipe, leaving the end stick out about 5 inches. The fluxing stopped, the frost crack disappeared, and over the 25 years that followed so has the drain pipe. I think frost cracks are caused by water expanding and contracting in the freezing temperatures.

Hugh E. Thompson
Professor, Kansas State
Manhattan, KS

Wetting agent helps Poa control

We enjoyed reading Jeff Hagman's article on some of the research being done with Embark to control Poa annua seedhead formation. It is good to begin to get this information out to the field.

We also thought the "Weeds Trees & Turf" readership would be interested to know about the concurrent "Poa seedhead control" research that has been conducted at Cornell. Dr. M. Petrovic has found that Aqua-GRO (the soil wetting agent for rootzone water management) as well as EMBARK properly applied in the spring gives consistently significant reductions in Poa seedhead formation with no discoloration or inhibition of the turf. In fact Dr. Petrovic's data showed improved quality ratings where Aqua-GRO was used. This treatment can also serve as the rootzone application of Aqua-GRO, thus becoming an additional benefit of a regularly used turf product.

Dr. Petrovic presented this research at the American Society of Agronomy meeting but has not yet published it as it is going through the patenting process. However, the abstract is in Agronomy Abstracts, page 145 and Dr. Petrovic can be contacted with questions on the work.

We enjoy reading your magazine. It is helpful in keeping abreast with new developments in the turf industry.

Demie Moore Powell
Vice President-Marketing
Aquatrols Corp. of America
Pennsauken, New Jersey

EVENTS

JULY						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24/31	25	26	27	28	29	30

California Association of Nurserymen Nursery Field Day. Research Reports, University of California, Riverside Campus. **July 7.** Contact CAN, 1419 21st St., Sacramento, CA 95814. (916) 448-2881.

Aquatic Plant Management Society, Inc. Annual Meeting, Duch Inn, Lake Buena Vista, FL. **July 10-13.** Contact APMS, PO Box 16, Vicksburg, MI 39180.

American Association of Sod Producers Association International Summer Convention and Field Days, Atlantic City, NJ. **July 11-13.** Contact Bob Garey, Executive Director, 9th and Minnesota, Hastings, NE 68901 (402) 463-4683.

American Association of Nurserymen Annual Convention, Montreal, Canada, **July 16-20.** Contact AAN, 230 Southern Bldg., 15th and 8th Sts., NW, Washington, D.C. 20005 (202) 737-4060.

Mississippi Turfgrass Association 24th Annual Conference, **July 24-26.** Contact Jim Perry, Dept. of Horticulture, Mississippi State University. (601) 325-3935.

1983 Penn Allied Nursery Trade Show, Hershey Lodge and Convention Center, Hershey, PA, **July 26-28.** Contact Pat Norman, PANT, 234 State St., Harrisburg, PA 17101-1181. (717) 238-1673.

University of Illinois Turfgrass and Ornamentals Research Field Day, Ornamental Horticultural Research Center, Urbana, IL. **July 27.** Contact Dr. Dave Wehner, 1707 S. Orchard, Urbana, IL 61801. (217) 333-7848.

Central Plains Turfgrass Foundation- Kansas State University Field Day, Manhattan, KS. **July 27.**

Illinois Landscape Contractors Association Annual Summer Field Day, Matt Tures Sons Nursery, Huntley, IL. **Aug. 3.** Contact Lucile Little, 4A East Wilson St., Batavia, IL 60510 (312) 879-0765.

Ohio State University Cooperative Extension Service Landscape Design Short Course for Residential Properties, Wooster, OH, "Planting Design," **Aug. 3-5.** Prerequisite is Course II. Contact Fred K. Buscher, Area Extension Center, OARDC, Wooster, OH 44691 (216) 262-8176

To insure that your event is included, please forward it, 90 days in advance, to: WEEDS TREES & TURF Events, 7500 Old Oak Boulevard, Cleveland, OH 44130.

Are you a Miser with Fertilizer?

If you're cutting down on your fertilizer and water bill,

OREGON GROWN CHEWINGS AND CREEPING RED FESCUE

is the grass you need. It's fine bladed and blends very well with other turf grasses. The fine fescues are noted for being real misers when it comes to low maintenance turf areas.

Use Oregon grown fine fescues for seeding or overseeding any turf area. It's the Miser grass!

OREGON FINE FESCUE COMMISSION

2140 Turner Rd. S.E. • Salem, Oregon 97302
503-585-1157

Circle No. 145 on Reader Inquiry Card

GET TOUGH

on
Dollar Spot
Fusarium Patch
Leaf Spot*
Brown Patch*
Red Thread*

*Approval Pending

PROBLEM SOLVERS

By Balakrishna Rao, Ph.D., and Thomas P. Mog, Ph.D.

Q: *Every year during the summer months we have seen lawns with extensive tip dieback of grass blades. I think it is Anthracnose disease. Could you please help me in identifying and controlling this problem? (Michigan)*

A: The tip dieback and blighting can be caused by a number of different fungi such as *Leptosphaerulina, Ascochyta, Septoria* and *Colletotrichum*. With the help of a 10X magnifying lens, examine affected turfgrass blades. You can distinguish *Colletotrichum*, the causal agent of Anthracnose, from all other fungi causing tip dieback by the presence of dark, minute spines protruding from the leaf surface in clusters. These are the fruiting bodies (acervuli) of the Anthracnose fungus. The other fungi (mentioned above) have smooth-walled fruiting bodies.

Anthracnose disease is reported to be very widespread and probably infects all cultivated turfgrass in warm (80°-85°F.) and prolonged moist weather. This disease usually establishes in turfgrass that is weakened by other pest problems such as leaf spot disease, improper fertility, compacted soil, etc.

Affected turf may show round to elongated, reddish-brown leaf lesions which often coalesce and blight the blades. Older affected blades will show the fruiting bodies (acervuli) with dark spines. Diseased turf is reddish-brown at first, fading to a light tan or yellow. Patches may vary from a few inches to 10-20 feet in diameter.

Follow good cultural practices to minimize the disease incidence and improve turf vigor. Provide proper watering and feeding. Pick up clippings to reduce the spread of disease and aerify if the soil is compacted. Applications of fungicides such as Tersan 1991, Fungo, Spot Kleen, Tersan LSR, Fore, Zineb, Dyrene, Daconil 2787, Captan or Tersan-75 will also help to manage the disease. Read the label and follow the directions.

Q: *This year we have seen a number of our clients' lawns showing browning of the turfgrass around house foundations. Upon close examination we found 8-legged, small insects. I think they are clover mites but I am not sure whether these insects can cause such an extensive injury to turfgrass. I would appreciate your comments concerning positive identification of clover mites and how to control them. (Pennsylvania)*

A: As you know, the first thing to do in pest management is to have proper identification of the causal agent. From your description of the pest, I feel that you are dealing with a clover mite *Bryobia praetosis* problem.

Mites are not true insects. The clover mites are very small (about 1/30-inch), with eight legs and a reddish-brown body, and usually present a problem by invading houses during the spring and fall. They have very distinguishing, long, front legs which extend forward from the body. These can be easily seen with a 10X hand lens. Mites feed on turfgrass, clover and other vegetation. During fall they lay eggs on building walls, tree bark or plants and have several generations per year. Infested turf initially shows a silvery appearance caused by the mites feeding activity. Damage is often seen in spring in a 3-feet band around house foundations.

GET VORLAN™
Fungicide

Cures and prevents
even resistant strains.

At your distributor now!

Tough new ways
to protect your turf

Mallinckrodt

Mallinckrodt, Inc.
St. Louis • Jersey City • Los Angeles
(800) 325-7155
In Missouri: (314) 982-5241

GET TOUGH

on
Cut Worms
Chinch Bugs
Sod Webworms
Billbugs, Grubs and
Many Other Insects

Usually chemical treatment is not necessary for clover mite control because predators keep the populations under good control. If the damage is extensive, apply chemical treatments at the first sign of infestation. Chemicals such as diazinon, Spectracide, Kelthane or Dursban can be used to minimize this pest. Read the label and follow the directions for more details.

Q: *Some of our clients' properties are heavily infested with moss. The properties are full of trees around the outer border with the house usually located in the center of a donut-shaped lawn. The lawns were seeded about 2-3 years ago and they are very thin. I would appreciate your recommendations to manage this moss-spreading problem. (New York)*

A: Before attempting to control the moss, study the properties and identify the reasons why moss is growing and establishing in these properties. A moss problem is usually the result of improper drainage, insufficient light or poor air circulation. Also, moss can tolerate alkaline or acid soils better than turfgrasses.

Moss can invade and establish well in those locations where conditions are unfavorable for turfgrass. Moss plants do not have roots, instead they have rhizoids.

The following guidelines may improve the condition of the turf. After identifying the possible reasons why moss is growing in lawns, try to eliminate those problems first. If heavy shade, reduce the shade by thinning tree branches. Improve drainage and air circulation to discourage moss growth. Make a soil test to determine soil pH and fertility and adjust accordingly.

After following these cultural practices, if desired apply chemicals such as powdered copper sulfate (2 lbs./acre or 3 level tablespoons/1000 sq. ft.). Be careful while using this product—use gloves because it stains clothes, skin, etc. Amonium sulfate (10 lbs./1000 sq. ft. when moss is actively growing) can also be used. Do not water the area after treatment.

After the moss is gone, the thinned out areas in the lawns should be overseeded with turf cultivars adapted to the locations.

Balakrishna Rao is plant pathologist and Thomas Mog is pest management specialist for Davey Tree Expert Co., Kent OH.
Questions should be mailed to Problem Solver, Weeds Trees & Turf, 7500 Old Oak Boulevard, Cleveland, Ohio 44130. Please allow 2-3 months for an answer to appear in the magazine.

GET DYMET™

Insecticide

Broad-spectrum,
dual formula works
safely and economically.
Labeled for turf and ornamentals.

At your distributor now!

Tough new ways
to protect your turf

Mallinckrodt®

Mallinckrodt, Inc.
St. Louis • Jersey City • Los Angeles
(800) 325-7155
In Missouri: (314) 982-5241

Circle No. 124 on Reader Inquiry Card

TURF MANAGERS' HANDBOOK

By Dr. William Daniel and Dr. Ray Freeborg

$23.95* **hardcover** $18.95* **paperback**

This essential reference book covers:

- scope and organization
- grasses and grooming
- rootzones and water
- nutrition
- pests and controls
- uses of turf
- serving turf needs
- AND MORE

The TURF MANAGERS' HANDBOOK is an easy on-the-job reference to planning, purchasing, hiring, construction, and plant selection. These 424 pages contain 150 illustrations, 96 color photographs plus 240 tables and forms.

ORDER YOUR COPY NOW!!!

Ordering Information

Please send _____ copies of the hardback ($23.95* ea.)

_____ copies of the paperback ($18.95* ea.)

Quantity rates available upon request.

*Please add $3.00 per order plus $1.00 per additional copy for postage and handling.

Please charge to my Visa, Master Card, or American Express (circle one)

Account Number _____

Expiration Date _____

Please allow 6-8 weeks for delivery.

Signature _____

Name (print) _____

Address _____

City _____ State _____ Zip _____

Phone _____

Send to: Book Sales
Harcourt Brace Jovanovich Publications
One East First Street
Duluth, MN 55802

WTT 73

Scientific Guide To Pest Control Operations

by Dr. L.C. Truman
Dr. G.W. Bennett and
Dr. W.L. Butts

Domestic: $32.50* (hardcover)
Foreign $37.50* (hardcover)

The SCIENTIFIC GUIDE TO PEST CONTROL OPERATIONS is designed to provide a sound basis for studying the scientific aspects of pest control and promote technical competence. It places emphasis on urban and industrial pest problems. This volume also covers the laws and regulations concerning the pest control industry.

The SCIENTIFIC GUIDE TO PEST CONTROL OPERATIONS is written for owners, supervisors, servicemen, salesmen, students, persons preparing for state certification under the EPA/state programs for commercial pesticide applicators, and people interested in structural pest control.

The SCIENTIFIC GUIDE TO PEST CONTROL OPERATIONS - a *must* for anyone involved in the field of pest control!

Return this coupon to: Book Sales
Harcourt Brace Jovanovich Publications
One East First Street, Duluth, MN 55802

Domestic: $32.50* (hardcover)
Foreign $37.50* (hardcover)

YES! Please send me _____ copy(ies) of the SCIENTIFIC GUIDE TO PEST CONTROL OPERATIONS.

A check or money order for _____ is enclosed.

Please charge to my Visa, Master Card, or American Express (circle one)

Account Number _____ Expiration Date _____

*Please add $3.00 per order plus $1.00 per additional copy for postage and handling.

Name _____

Address _____

City _____ State _____ Zip _____

Signature _____ Date _____

Phone _____

WTT 73

Quantity rates available upon request.

Please allow 6-3 weeks for delivery

PRODUCTS

Ditch Witch debuts compact loader

Ditch Witch, a company known for its trenching, vibratory plow and related equipment to install material in the ground, has entered the compact loader market. It is introducing the 400 LD, a half-cubic-yard, 40 hp class articulated loader.

Lift arms and bucket on the loader are solid steel. It has four-wheel drive and an articulated frame for maneuverability.

Bill Haynes, director of marketing, said the new loader is seen as a natural extension of the Ditch Witch line of equipment.

"We believe, he said, "there is a place in the market for a high-quality, compact loader and that the Ditch Witch 400LD has the highest quality and is the best value of any product available.

The machine is available through the Ditch Witch dealer organization which offers sales, parts and service.

Circle No. 140 on Reader Inquiry Card

Dow offers wettable powder DURSBAN

Dow Chemical U.S.A. has added a wettable powder insecticide to its line

Bill Schader
Ranch Manager
AmFac Garden Cal-Turf; Camarillo, CA

Columbia Kentucky Bluegrass is at the roots of a good sod business . . .

Columbia Kentucky Bluegrass is the ideal "blue" for sod and home lawn use. Above ground level, Columbia produces a medium dark green turf that is resistant to Fusarium Blight, Leaf Spot, Stripe Rust and Stripe Smut. Columbia adapts well to all geographical areas and has good winterability in colder climates.

Underground, Columbia produces a quick spreading rhizome system that allows sod to be harvested earlier. A good root system is important to turf health in hot, dry summer periods. Columbia's Fusarium Blight resistance makes it a perennial winning turf-type "blue".

The Rewards of Research...

These test plots at Camarillo, California, proved Columbia Kentucky Bluegrass was best suited to this area. Fusarium and rust damaged Baron, Victa, Glade, Park and Touchdown while Columbia rated second only to the experimental CHB-11A. As a result, Columbia was chosen as a vital part of the mixtures used in southern California sod.

Rankings from turf trials throughout the United States:

Kentucky Bluegrasses (1 = best)	Rutgers University 23 entries seeded—1976 data—1977-79 (3 yr. average)	Ohio State University 40 entries seeded—1978 data—1980	University of Illinois 20 entries seeded—1978 data—1980	Kansas State University 45 entries seeded—1979 data—1980	Camarillo California 25 entries seeded—1977 data—1978	University of Idaho 62 entries seeded—1979 data—1980
Columbia	2	3	1	13	2	6
Midnight	*	1	3	13	*	1
Baron	14	39	12	23	13	27
Adelphi	1	36	2	16	4	4
Victa	20	38	*	15	*	9
Touchdown	3	18	18	7	14	46
Merion	19	34	20	*	18	12

Developed and produced by

Turf-Seed, Inc.®

Dr. William Meyer will answer questions on your particular sod variety needs. Please contact him at the number below:

P.O. Box 250
Hubbard, OR 97032
Phone 503-981-9571
TWX 510-590-0957

The Research, Production, Marketing Co.

Circle No. 139 on Reader Inquiry Card

of Dursban insecticide products. New Dursban 50W is a broad spectrum insecticide which will control many pests harmful to turf and ornamental plants.

The product contains 50 percent Chlorpyrifos (0.0-diethyl 0-3,5 6-tricholor-2-pyridyl phosphorothioate) and 50 percent inert materials.

The new insecticide offers reduced phototoxicity effects compared to EC products, according to Vince Geiger, product manager for Dursban 50W.

"The product offers the benefits of easy mixing with wettable powder fungicides, improved grub control, effective residual control, cost competitiveness and good storage and handling characteristics," he said.

The insecticide is approved for use in every state except California where label approval is in process.

Dursban 50W is compatible with commonly recommended insecticides, miticides and fungicides (except for alkaline materials.) It is applied as a dilute (with water) or concentrate foliar spray using conventional power-operated ground spray equipment that insures thorough, complete coverage of foliage. In treating lawn pests, the insecticide is applied as a coarse, low pressure spray. Ornamental trees and plants are treated by applying a wetting spray to both upper and lower leaf surfaces as well as infested limb and trunk surfaces.

The product is also approved for control of peach tree borer and native elm bark bettle. It can be applied in area control of ticks and chiggers infesting non-cropland areas—roadsides, footpaths and trails, picnic and camping sites, parks and other recreational areas where pests create a nuisance and potential human health problem.

Circle No. 141 on Reader Inquiry Card

Cut the Cost of Soil Management...

No other product can give you the results and still cut soil management costs like PENE-TURF Soil Treatment. PENE-TURF costs only about $8 an acre to apply...you can treat **twice** the acreage at less than **half** the cost of similar products!

And what results! Golf course superintendents and professional turf managers across the nation are finding that PENE-TURF improves aeration...helps establish better rooting...eliminates wet **and** dry spots...helps curb erosion...and so much more.

Find out for yourself...write or call today for FREE information about PENE-TURF...the **best** solution for soil management.

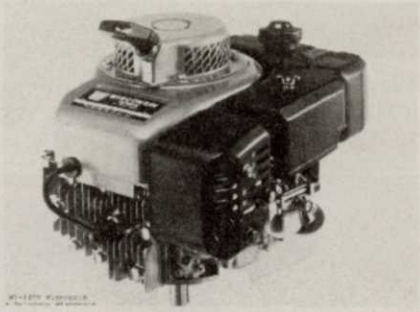
Dealerships available in some areas.
Write or call today!

...use PENE-TURF.

FOUR STAR AGRICULTURAL SERVICES, INC.

110½ East Wabash St. • Bluffton, IN 46714 • (219) 824-5384

Circle No. 113 on Reader Inquiry Card



Teledyne introduces vertical shaft engine

Teledyne Total Power, Memphis, has introduced its first vertical shaft Wisconsin Robin Long-Life Engine. The new unit is a single cylinder 3.5 hp air-cooled gasoline engine designated Model W1-145V.

The new engine represents Teledyne Total Power's first move into the vertical shaft engine market in recent years, with the unit targeted at the commercial lawn and garden equipment manufacturer, as well as the rental and replacement markets.

Model W1-145V has a heavy, cast-in iron cylinder liner; forged aluminum connecting rod; ball main bearings, mechanical flyweight governor; and a forged steel crankshaft. In standard configuration, the new engine produces its peak 3.5 hp rating at 3,600 rpm. It has a displacement of 8.72 cu. in. (143 cc) with a bore of 2.48 inches (63 mm) and a stroke of 1.81 in. (46 mm). At normal operating speeds, the noise level is low. In full production, the unit is well-suited for powering a variety of equipment requiring a vertical shaft engine, including professional lawn and garden equipment.

Circle No. 142 on Reader Inquiry Card

for the sporting life

There was a time when the two most important things on a coach's mind, before the big game, were the condition of his players and the strategy behind his game plan. Today, however, most coaches have an additional consideration ... the playing field. Is the turf well-rooted? Firm? Safe? He demands a field that's in top condition — a field that won't interfere with his players' results or jeopardize his game plan's success.

Because your success is based on results, consider A-34 BenSun® when buying, selecting, or specifying a Kentucky Bluegrass. A-34 BenSun® is the hardy bluegrass that is providing better, safer playing fields, coast to coast, for some of the nation's leading stadiums, such as, San Francisco's Candlestick Park, Denver's Mile High Stadium, Milwaukee's County Stadium, Chicago's Cominsky Park and Baltimore's Memorial Stadium, as well as many college and university stadiums. So, whether the sport is football, baseball, or soccer, A-34 BenSun® is the Kentucky Bluegrass of the pros.

Horse Racing ... Can anything be as punishing to turf grass? Imagine the slashing and tearing of thundering hoofs as they run for the wire. A-34 BenSun® is rugged enough to withstand this kind of beating and still recover quickly. That's why many race tracks accross the country specify A-34 BenSun® Kentucky Bluegrass.

Divots, spikes, electric carts, hot sun and short mowings. All of these are par for most courses.

That's why you need the one Kentucky Bluegrass that will go the distance on your tees and fairways ... A-34 BenSun® . A-34 offers excellent wear tolerance that will take short mowing down to ½ inch, so the ball rolls fast and lies well.

So, don't leave your choice of Kentucky Bluegrass up to the toss ... When it comes to a tough bluegrass, one that can really take it ... score with A-34 BenSun® from Warren's ... the winningest bluegrass today.

Warren's
TURF NURSERY, INC.

Corporate Office:
7502 S. Main Street
Crystal Lake, Il. 60014
(815) 455-5100

Seed — Special Products Division
Cordelia & Chadbourne Roads
P.O. Box 459
Suisun City, Ca. 94585
(707)422-5100

Circle No. 136 on Reader Inquiry Card

CLASSIFIEDS

RATES: 95 cents per word (minimum charge, $20). Bold face words or words in all capital letters charged at $1.20 per word. Boxed or display ads charged at $75 per column inch (one inch, minimum). Agency commissions will be given only when camera-ready art is provided by agency. For ads using blind box number, add $5 to total cost of ad. Send ad copy with payment to Dawn Anderson, WEEDS TREES & TURF, 1 East First Street, Duluth, MN 55802.

BOX NUMBER REPLIES: Mail Box number replies to: WEEDS TREES & TURF, Classified Ad Department, 120 W. 2nd St., Duluth, MN 55802. Please include box number in address.

BUSINESS OPPORTUNITIES

WANT TO BUY OR SELL a golf course? Exclusively golf course transactions and appraisals. Ask for our catalog. McKay Golf and Country Club Properties, 15553 N. East Street, Lansing, Michigan 48906. Phone (517) 484-7726. TF

COLUMBUS, OHIO—The Columbus and Franklin County Metropolitan Park District is seeking leasing proposals for the design, development, maintenance, and operation of a regulation 18-hole golf course at Highbanks Metro Park, Columbus, Ohio. Proposals will be received at the District's offices, 1069 West Main Street, Westerville, Ohio, until 11:00 a.m., e.d.t., August 2, 1983. Each proposal shall be accompanied by a signed proposal to lease as verification that the proposer will enter into a Lease Agreement. After time of opening, no proposal may be withdrawn for a period of one hundred twenty (120) days. The Board of Park Commissioners reserves the right to reject any or all proposals, to waive irregularities and/or formalities and to make award in any manner deemed for the best interest of the Park District. Proposal forms, location plans, topographic maps, and soil information may be obtained from Metro Parks, P.O. Box 29169, Columbus, Ohio 43229 (1069 W. Main Street, Westerville, Ohio), 614-891-0700. 7/83

USED EQUIPMENT

HI-RANGERS AERIAL BASKETS 65', 57', and 53'. Skyworkers aerial baskets 65', 50', 40'. Vermeer stump cutter 1560,6. Vermeer tree spade 66, TS 44. Asplundh bucket and brush chippers, Bean sprayer, 9 ton trailer. Parkway Tree Service, 12026 W. Cherry, Wauwatosa, Wisc. 53226. (414) 257-1555. TF

NEW and USED EQUIPMENT Hi Ranger and Asplundh Forestry bucket trucks, Asplundh and Chipmore wood chippers, Stump Grinders, Log Splitters, Crane Trucks. Mirk Inc. (216) 669-3567 (216) 669-3562, 7629 Chippewa Road, Orrville, Ohio 44667. TF

USED GOLF CARS FOR SALE—All makes and models, 3 & 4 wheel, electric or gas. If we don't have your choice in stock we can get it. Transportation available. Mid-Atlantic Equipment Corp., Collegeville, PA. Call Now! (215) 489-1400. TF

CLASSIFIEDS GET RESULTS

HYDRO-MULCHERS AND STRAW BLOWERS. New and used. Southwest Hydro-Mulchers, 3220 S. Jupiter Rd., Garland, Tx. 75041. (214) 840-2440 (Tx.), (800) 527-2304 (except Tx.) TF

TREE SPRAYER for sale. 500 gallon tank, 40 gallon per minute pump, excellent condition. For information call Horizon Estates Landscape Co., Franklin Lakes, New Jersey. (201) 891-9356. TF

Hydraulic cranes, bucket trucks, knucle boom loaders, crew cab tree trucks, dump chip boxes. 75 used trucks in stock. Opdykes Sales, Route 309, Colmar, (Phila) area PA. (215) 822-8300. 12/83

Harley Rake—hydraulic, perfect condition, $2900.00, ready to go. For details call 902-477-4844. 7/83

Used - Jacobsen F10, 7 gang, 5 blade blitzer mowers, semi-pneumatic tires, $6,800.00. Call 616/887-7301. 7/83

Used - Jacobsen F10, 7 gang, 10 blade fairway mowers, steel wheels, $9,000.00. Call 616/887-7301. 7/83

Used - Toro Parkmaster, 9 gangs, 7 blade fairway mowers, single point adjustment, semi pneumatic tires, $16,000.00. Call 616/887-7301. 7/83

Toro Professional 70 Tee Mower, Toro Workmaster Utility Vehicle, Ryan eight hole greensaire model 544435, Ryan Ren-o-thin thratcher model 544831. All items in very good condition. Call after 3:00 P.M. (812) 591-2935. 7/83

For Sale—1978 Princeton Sod Harvester, Model 4020, with John Deere diesel. Ready for work. Looks Good—Runs Good! $25,000. Grass Farm, Morgan Hill, CA. 408-226-9775. 8/83

Jacobsen FB - 5 gang rough mower, all hyd. Excellent condition, new paint, 2 extra units, can be used as 7 gang. 614-965-2977. 7/83

Used Kershaw Klearway model 10-5, $17,000; and used Bombardier Track Brush Cutter, $12,000. (404) **323-9428.** 7/83

1974 Woodchuck Chipper, 16", 330 V-8. EXCELLENT—EXCELLENT CONDITION; Low Hours! $5,500. 203-688-1603—Windsor, Connecticut.

Lawn Mower-Used Jacobsen for sale, 7 reel, hydraulic lifts, excellent condition, New $32K, sacrif. $7,500. (408)266-6016. 7/83

FOR SALE

For Sale: Termite & Pest Control Business, grossing $220,000.00, high profit. Will take cash or terms available. Incorporate your Lawn Business with our list of satisfied customers. Also able to break down into 3 separate companies, price at $52,000.00, $26,000.00 and $152,000.00, buy one or all 3. Firm based in Indiana. Contact A.E.W., P.O. Box 1732, South Bend, IN 46634. 9/83

GREENSMIX—New or old const. Will blend material on job site for you, radius of 700 miles. Large Royer—S.D.I., P.O. Box 2611, Shawnee Mission, Kansas 66201. Phone (913) 381-5151. 7/83

SPRAYERS—FACTORY DIRECT, professional gardeners, turf applicators, proven dependability, unconditionally guaranteed. Black River Sprayers, Dept. 1-A, P.O. Box 11, Long Beach, N.C. 28461. 8/83

For Sale: 9 hole golf course 60 miles from Minneapolis-St. Paul on Interstate. Driving range, clubhouse, liquor, utility building and all equipment. Land for additional nine plus residential development. Call (715) 235-9102. 7/83

CLOSEOUT SPECIAL! Save your back issues of WEEDS TREES & TURF and save money at the same time. We're closing out our line of permanent binders at the special low price of *two for only $7.50!* (This is a $7.00 savings over our regular price plus postage and handling.) Orders will be filled as long as our supply lasts—quantities are limited. Order your binders today from: Book Sales, HBJ PUBLICATIONS, One East First Street, Duluth, MN 55802. TF

Jacobsen F133—5 unit, $4500, Fresh Rebuild, 1/800/251-1404, Steve. 7/83

Northern grown pure Meyer Zoysia (Z-52) your future great water and $ saving turf—Guaranteed Bermuda & bug free—"Beauty Lawn Sod" (Cincinnati) (513) 424-5722. 8/83

For Sale: Finn 1977 Titan Hydroseeder 2500 Gal. on 1966 Ford Tand. Excellent condition, $14,000.00 H.R. Fipps & Son, Inc., Maryville, Tennessee, 615-982-7200. 7/83

SKYWORKER AERIAL BUCKETS—Sales of both new and used. Finest service anywhere in the country. Overhauls and changeovers are our specialty. Best prices on parts. We deal in all types of tree trimming equipment. Ask about fleet discounts. Call or write American Hydraulics, Inc., Route #4, Hartwell, GA 30643; (404) 376-3191.

FOR SALE: 1977 F-10 Jacobsen, with seven gang blitzer reels, 4 cyl Ford Diesel engine and cab. Excellent condition. Assorted parts. 1,630 hours. AAL, 4321 North Ballard Road, Appleton, WI 54919. Phone: (414) 734-5721, ext. 2008. 7/83

NEW TREE FERTILIZATION GUN, tested on over a million square feet of trees and shrubs all over the U.S. Good to 500 psi, repairable, non-corrosive. Buy direct from manufacturer, $89.50+ Shipping. Arbor-Nomics, Inc., 5634-A Buford Highway, Atlanta, Georgia 30071. (404) 447-6037. TF

1974 Chevy 50' Skyworker fully insulated with 12' Chip Box, excellent condition $23,995. 6 cyl. 12" Asplundh Chipper $5,500. Edwards Tree Service, 216-988-4477. 8/83

GROUND COVER

Hardy Myrtle (Vinca Minor), 10-20 stems. Heavy clumps with excellent foliage, freshly dug. $26 per 100, $130 per 1000.

FLICKINGERS NURSERY
Sagamore, PA 16250
Phone AC412/783-6528
or 397-4953

SKYWORKER AERIAL BUCKETS: Sales, Parts and Service. Overhauls and changeovers of Skyworker are our specialty. - New and used units available to 65 ft. New and used brush chippers, Hydro-Ax's and digger derrick's also available. Call or write P.C. GOULD SALES CO., Plains Road, Essex, CT 06426. (203) 767-1636. 9/83

USED EQUIPMENT SALE—Toro 70" Tee Mower —$950.00. Turf Vac Demo 48" self propelled—$4200.00. Jacobsen 76" Turf King—$1800.00. Jacobsen 76" Turf King (hydrostat)—$2300.00. Toro 80" Front Runner Rotary—$2800.00. Many other models and items available. Central South Turf—Nashville, Tenn., 1/800/251-1404 7/83

TORO PARKMASTER 7—Completely Rebuilt/ Repainted with rebuilt reels—$14,500, without reels—$10,000. 1/800/251-1404, Steve. 7/83

For Sale—Rome-feller Buncher 20"; used once; call for price—716-436-2900, ask for Tom or Bob. 7/83

For Sale—5 Servi/Lifts 55' working hgt., isolated booms in use everyday, call for price — Don: 401-353-2144 or Bob: 401-725-2250. 7/83

FOR SALE - FINN EAGLE MULCH SPREADER. Diesel, low hours, like new. 600 gal. asphalt tank w/heater, 20 GPM transfer pumping unit. Phone (815) 939-7908 evenings. 7/83

1974 Int'l. Truck with 14' Steel Dump Box; and Center Mounted J/D Pettibone Elbow Loader. Excellent Working condition; $12,000. Ideal for tree and brush removal; recently reconditioned. Bank of Galesville; Galesville, WI 608-582-2233. 7/83

Jake 9 & 7 gang mowers with 10 blade reels - just sharpened and A-1 - also 4-71 Detroit power unit complete. 1-513-424-5722. 7/83

CALIFORNIA COASTAL REDWOODS, 10" to 14", hardy to -7 degrees, guaranteed, 3 for $9.95, 6 for $14.95, GLA Nursery, 13131F, Allison Ranch Road, Grass Valley, CA 95945. 9/83

---

300 acre sod farm, 80 acres of ready-to-sell sod: Hybrid Bermuda, Zoysia, Centapede and common Bermuda. All equipment: tractors, Brouwer sod harvester, fork lift, 2 water machines, pumps, and miscellaneous equipment. Nice climate. Jackson, Mississippi. 150 miles from New Orleans, 200 miles from Memphis. Easy financing. Billy Martinson. (601) 956-5022. 7/83

WANTED

ACCOUNTS WANTED—National chemical lawn care company seeks accounts to acquire. Selling price open for negotiation. If interested, send name, address, phone number and number of accounts available to WTT Box 317. 3/84

WANTED: Large Lindig and Royer Shredders. Lewis Equipment, 320 Third Street S.W., Winter Haven, FL 33880. (813) 294-5893. 6/84

Established 20 year old company wishes to expand its lawn care business in Florida and the Southeast. Terms may be arranged to suit the seller. All replies confidential. Contact Ron Collins, R. W. Collins, Inc., P.O. Box 2477, Satellite Beach, Fla. 32937.

HELP WANTED

Join a growing, 3½ million dollar pest control and lawn care company. We need Branch Managers and Manager trainees to staff our new locations in Florida and the Southeast. Send resume in confidence to Ron Collins, R. W. Collins, Inc., P.O. Box 2477, Satellite Beach, Fla. 32937.

Help Wanted - Arboriculture, Urban Forestry. We are looking for a hardworking individual to supervise our chemical application/pest management department. Must be experienced in plant and pest I.D. Our firm is an aggressive, innovative complete arboricultural firm located in the Chicago suburban market. This is a year 'round position that will involve some general tree care during off seasons. Salary range 15 to 20M, dependent upon experience. Write WTT Box 318. 7/83

Shop foreman with ten or more years experience on turf equipment. Salary open. Lewis Equipment Company 813/294-5893. 9/83

POSITION WANTED

Chemical Lawn and Tree Manager—Seeks challenging management position for established chemical lawn and tree company in Florida. Six years experience, with extensive knowledge of turf grass, ornamental plants, and marketing. Resume upon request. Write WTT Box 319. 7/83

Golf Course Superintendent—Seeks position as golf course superintendent. 5 years experience in golf course maintenance and management, including assistant and then golf course superintendent at private club. Age 26, single. B.S. degree in agronomy (turf management, major) from Univ. of Georgia. Timothy Joyce, 36 Garden Court, Huntington, NY 11743, (516) 421-3476. 7/83

MISCELLANEOUS

DIESEL HI-RANGER TOWERS—48-100 Feet working heights. Daily, weekly, monthly rentals with or without operator. MATLOCK LEASING, Pottstown PA (215) 326-7711 or (800) 345-7711. TF

BALL BARRIER NETTING: Made of olefin fibers. 6½ feet and 25 feet high. Strong and tough. Will not rust. Easy to handle. For Driving Ranges and Golf Courses. Keep golf balls from straying off-course. J.A. Cissel Co., Inc., Dept. JK, P.O. Box 339, Farmingdale, NJ 07727. (800) 631-2234. 7/83

Grounds Care Consultants . . . independent evaluations of your personnel, equipment, landscape and suppliers to provide you with superior management tools for efficient operations . . . on your grounds . . . or on a new project.

Grounds Care Consultants

P.O. Box 140
Brentwood, Tennessee 37027
615/832-7752

Then let us know.

This publication will be mailed only to your current business address. Please indicate changes and return this coupon to us along with the mailing label attached to the magazine cover to avoid duplication. Thank you.

Send to:
WEEDS TREES & TURF
HARCOURT BRACE JOVANOVICH PUBLICATIONS
Subscription Dept.
1 East First Street, Duluth, MN 55802

Signature _____

PLEASE PRINT

Name _____

Business Name _____

Business Address _____

City _____ **State** _____ **Zip** _____

Phone _____ **Date** _____

Olathe

TURF & TREE

PRESENTING THE NEW OLATHE TURF TRUCK

The MODEL 492 OLATHE TURF TRUCK has been designed to be a practical utility truck capable of performing many jobs less expensively than comparable systems.

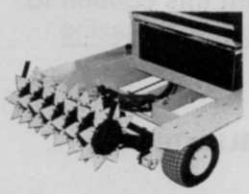
PLUS AN IMPRESSIVE LINE OF ATTACHMENTS

CHIPPER

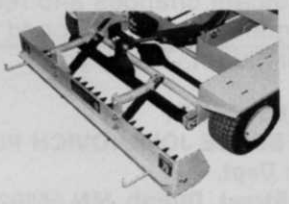
SPRAYER

TOP DRESSER

BLOWER



AERATOR



SCARIFIER

Call or write today for more information.

OLATHE MANUFACTURING, INC.
100 INDUSTRIAL PARKWAY
INDUSTRIAL AIRPORT, KS. 66031
913-782-4396 800-255-6438

Circle No. 129 on Reader Inquiry Card

ADVERTISER INFORMATION

Reader Service Number		Page No.
102	Brouwer Turf Equip. Ltd.	15
219	Ciba-Geigy Corp.	53
104	John Deere & Co.	CV 4
105	Diamond Shamrock/Ag Chem Div.	12, 13
106	Ditch Witch Equipment	35
107	Ditch Witch Equipment	37
108	Ditch Witch Equipment	39
109	Ditch Witch Equipment	41
110	Dow Chemical U.S.A.	CV 2, 1
111	Dow Chemical U.S.A.	30, 31
112	Ford Tractor Operations	3
113	Four Star Agricultural Services	60
114	Full Circle, Inc.	23
115	Goossen	50
116	Hoffco	29
117	Homelite Div. of Textron	7
118	Jacklin Seed Co.	54
119	Jacobsen Div. of Textron	11
213	Kubota Tractor Corp.	21
121	Lofts Pedigreed Seed Co.	CV 3
122	Lofts Pedigreed Seed Co.	27
123	Lofts Pedigreed Seed Co.	51
124	Mallinckrodt	56, 57
125	Mathews Co.	19
126	Milwaukee Metro Sewerage District	43
127	Monsanto Co.	4, 5
128	Mud Cat	20
129	Olathe Mfg.	64
145	Oregon Fine Fescue	55
130	Pennfine Perennial Ryegrass	9
132	Spraying Systems Co.	20
133	Stauffer Chemcial Co.	33
134	The Toro Co.	25
131	Toro Irrigation Div	42
135	Trebor Corp.	19
139	Turf-Seed	54
136	Warren's Turf Nursery	61
137	Weather-matic	52
138	Whitmire Research Laboratories (regional)	44

NEW PRODUCTS

140	Ditch Witch	58
141	Dow Chemical U.S.A.	58
142	Teledyne Total Power	60

This index is furnished for the readers' convenience. However, the publisher can not guarantee its accuracy due to circumstances beyond our control.

Prelude

turf-type perennial ryegrass

"Every 'new generation' brings with it something special. So it is with this new ryegrass . . ."

Rich Hurley

It's here. PRELUDE, a "new generation" ryegrass that sets new standards in all 'round performance. The ryegrass that far surpasses those most popular varieties of just a few years ago.

Through Lofts research program, breeding material was obtained from the New Jersey Agricultural Experiment Station, under the direction of Dr. C.R. Funk of Rutgers University. The results? Prelude, the turf-type perennial ryegrass that answers the professional's needs.

- Improved mowability
- Excellent heat and drought tolerance
- Good winter hardiness
- Good resistance to crown rust and brown patch
- Attractive dark green color
- Quick germination
- Fine-leafed, dense growth

This is the ryegrass the golf course superintendents and grounds care people have been waiting for. And it shows exceptional performance in Southern overseeding programs.

Try the "new generation" ryegrass . . . PRELUDE.

LOFTS

Lofts Seed Inc.

Bound Brook, NJ 08805
(201) 356-8700 • (800) 526-3890

Dr. Richard Hurley, Director of Research at Lofts Seed Inc., heads the company's continuous research programs which enable Lofts to maintain the enviable reputation of being a leader in the turf field with the introduction of superior, proprietary varieties.

Prelude is a product of Lofts Seed Inc. and Great Western Seed Co., Inc.

Circle No. 121 on Reader Inquiry Card

Great Western Seed Co., Inc. Albany, OR 97321 (503) 926-5892	Lofts/New England Arlington, MA 02174 (617) 648-7550	Sunbelt Seeds, Inc. Tucker, GA 30084 (404) 491-1311	Lofts/Maryland Beltsville, MD 20705 (301) 937-9292	Lofts/New York Cambridge, NY 12816 (518) 677-8808

Available Fall 1982

Three strong choices for clean-cut mowing.

If you need a rear-mounted grooming mower that'll stand up to the abuse of tough jobs, you need a John Deere.

All three models we offer are designed and built to cut cleanly year after year. And convenient 3-point hitch mounting makes it easy to team the right one with your tractor.

For big jobs, choose the 272 Mower that fits a wide range of utility tractors and cuts a 6-ft. swath. If you're after more maneuverability, hook the 5-ft. 261 up to a compact utility tractor. And if you'd like to get the most out of a lawn and garden tractor, choose the 5-ft. 260 Mower.

While the mowers differ in size, each one features a thick, stamped steel deck for long-lasting durability. Underneath each deck, you'll find three heat-treated alloy steel blades that hold sharp edges longer.

Besides being built strong, these mowers also deliver the kind of manicured cut your jobs demand. Each mower has large, adjustable gauge wheels to support the rear of the mower. Anti-scalp rollers help prevent gouging over uneven ground.

You can also adjust the mowers to cut as close as 1½ inches. No matter how high or low you cut, ample air flows inside the deep deck to provide good suction for smooth mowing, and to distribute clippings uniformly.

Long belt life is another feature of these PTO-driven mowers (540-rpm PTO on the 272 and 261, 2000-rpm on the 260). Power flows through a gearbox that eliminates belt twisting.

For the name of the nearest dealer, or a free folder on the 3-point hitch mounted mowers, call 800-447-9126 toll free (Illinois 800-322-6796) or write John Deere, Dept. 50/67, Moline, Illinois 61265.

JOHN DEERE

Nothing Runs Like A Deere®

Circle No. 104 on Reader Inquiry Card